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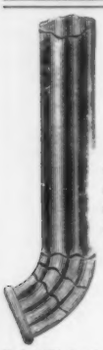

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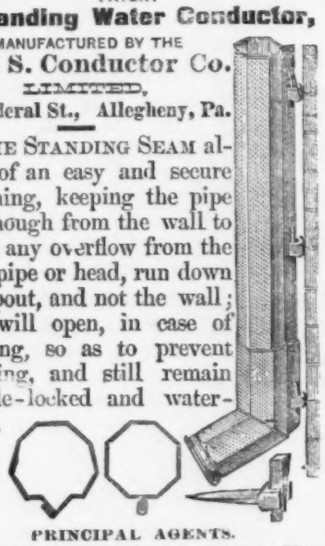

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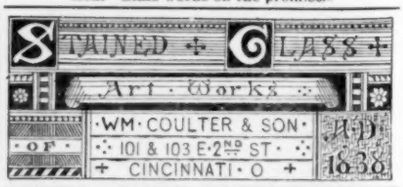

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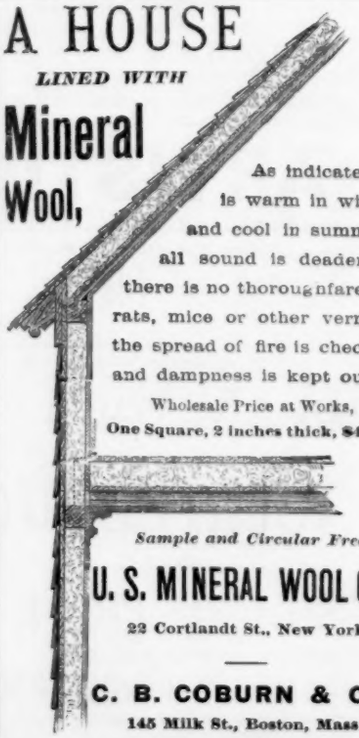
LINED WITH
Mineral Wool,



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IT IS EASILY AND CHEAPLY APPLIED.
PLASTERING ON THE WIRE LATH WILL NOT CRACK.
THE LATH WILL NOT CORRODE.

The plastering, when applied, clinches on both sides of the wire, forming a double surface.
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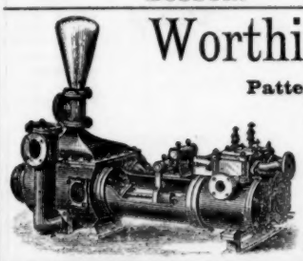

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Reserve for Re-insurance	635,741.16
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Total Assets, January 1, 1883	2,565,141.29

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Reported for the American Architect and Building News.

BRICK.—₱ M.	New York. (Wholesale Prices.)	Boston. (Prices to Builders and Contractors.)	Chicago. (Prices to Builders and Contractors.)	Philadelphia. (Prices to Builders and Contractors.)
Common: *Cargo afloat.*				
Pale	$2 50 @ $3 50	Eastern 7 50 @ 8 00	Building Brick 8 00 @ 8 50	Hard 7 50 @ 8 50
Jersey	4 00 @ 4 60	Bay State Hard 9 00		Salmon @
Up River	5 00 @ 5 50			Stretchers 11 00 @ 12 50
Haverstraw Bay	5 50 @ 6 00	Domestic Com. 8 00 @ 9 00	Indiana Pressd 16 00 @ 28 00	
" 1st	6 00 @ 6 50	Domestic Face 19 00 @ 20 00	St. Louis Fronts 25 00 @ 30 00	Pressed 20 00 @ 23 00
Fronts:				
Croton, Brown	13 @ 14 00	Philadelphia 40 00 @ 45 00	———	———
" dark	14 @ 15 00		———	———
" red	14 @ 15 00	Phila. mould 50 00 @ 80 00	———	———
Chicago pressed			22 00 @ 35 00	
Chicago Moulded			65 00 @ 350 00	
Baltimore	37 @ 41 00		@ 55 00	———
Glens Falls—white	30 @ 35 00	Glens Falls 25 00 @ 26 00	———	———
Philadelphia	@ 27 00		42 00 @	———
Trenton	@ 27 00		40 00 @	———
Milwaukee		Glens Falls Mould.	25 00 @	———
Moulded:			60 00 @ 100 00	———
Clark's Glens Falls—Red	25 00 @ 27 00	30 00 @ 35 00	30 @	
" —White	30 00 @ 35 00	35 00 @ 40 00	35 @	
White " Mold	45 00 @ 60 00	45 00 @ 60 00	55 00 @ 65 00	
Enamelled: *Imp.*				
Enamelled (edge.)	85 00 @ 100 00	@	@ 100 00	Dom. @ 65
Enamelled (edge and end)	90 00 @ 115 00	@	@ 120 00	@ 85
CEMENT, LIME, etc.—(₱ *cask.*)				
Chicago Lime in bulk			65 @ 75	
Wisconsin "			80 @ 90	
Rosendale Cement	80 @ 1 00	@ 1 50	*Not Sold.*	1 50 @ 1 75
Utica, Akron, Buffalo, Louisville, Milwaukee	*Not sold.*	*Not sold.*	1 00 @ 1 25	*Not sold.*
Portland (English)	2 60 @ 3 10	@ 3 20	2 75 @ 3 00	3 25 @ 3 50
" (Saylor's Am.)	2 05 @ 2 40	2 50 @ 3 00	2 75 @ 3 00	2 50 @ 3 00
" (Dyckerhoff)	2 75 @ 3 15	3 00 @ 3 50	3 25 @ 3 75	3 00 @ 3 25
" (Lafarge)	3 50 @ 4 50	*Not sold.*	3 75 @ 4 25	4 50 @
" (Star)	2 70 @ 3 00	*Not sold.*	*Not sold.*	*Not sold.*
K. B. & S. (Eng.) Portland	2 85 @ 3 10		3 35 @ 3 50	3 00 @ 3 25
Burham " "	2 60 @ 2 80		3 15 @ 3 35	2 75 @ 3 00
Vorwohler	2 65 @ 3 25		3 00 @ 3 25	
German (Fewer)	2 50 @ 2 70	3 15 @ 3 35	3 15 @ 3 35	
" (Alsen)	2 50 @ 2 80	3 00 @ 3 50	3 15 @ 3 35	2 90 @ 3 25
Selenitic		1 65	*Not sold.*	"
Hydraulic Lime of Teil	@ 5 00		*Not sold.*	
Roman	2 75 @ 3 00	@ 3 20	2 75 @ 3 25	3 50 @ 3 75
Keene's coarse	5 00 @ 6 00	@ 7 50	7 50 @ 9 00	6 50 @ 7 00
" fine	9 25 @ 10 25	@ 11 50	11 00 @ 12 50	11 50 @ 12 00
Lime:				
Rockland and Rockport, (Com.)	@ 1 00	@ 1 10	*Not sold.*	1 00 @ 1 25
Rockland and Rockport, finish	@ 1 20	@ 1 15	*Not sold.*	
State, com. cargo rates (nom.)	75 @ 80	*Not sold.*	*Not sold.*	*Not sold.*
State, finishing "	95 @ 1 10	*Not sold.*	*Not sold.*	*Not sold.*
Plaster of Paris (calcined.)	1 30 @ 1 35	1 70 @ 1 90	@ 1 75	2 00 @ 2 25
" (casting)	1 50 @ 1 65	@ 2 25	@ 2 00	2 25 @ 2 50
Hair (Cattle) ₱ *bush*	21 @ 23	@ 30	30 @ 35	25 @ 33
" (Goat)	30 @ 35	@ 30	35 @ 40	@
Sand, ₱ *load*	1 00 @ 1 25	@ 1 50	100 @ 1 25	@ 1 50
STONE. (₱ *cubic foot, rough.*)				
Granite: (*Maine*)		@ 60		75 @ 2 00
Limestone:				
Bedford	@ 1 00	95 @ 1 00	50 @	8 75 @
Joliet	@		35 @ 55	
Lemont	@		35 @ 60	
Serpentine	@		80 @ 90	75 @ 1 25

(Continued on page vi.

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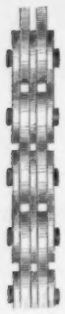

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Foundation:				
Dimension	@	5 00 ℔ ton	20 @ 28	30 @ 5 00
Block	@	4 60 ℔ perch	8 50 ℔ cord.	50 @ 6 00
Rubble	@	1 25 @ 1 50	8 50 @	
Bluestone: (℔ *sq. ft.*)				
Sidewalk	30 @ 5 00	40 @ 1 75	75 @ 1 00	70 @ 90
Planed	50 @ 6 00	75	50 @ 1 00	1 10 @ 1 25
Sandstone.				
Longmeadow		75 @ 85		
Brown (Connecticut)	1 00 @	1 25 @ 1 45	1 50 ℔ cub.ft.	1 25 @ 1 75
Amherst	1 00 @	90 @ 1 00	55 @ 65	
Berea	75 @ 1 00	80 @ 90	45 @ 55	90 @ 1 10
Berlin	75 @ 1 00	80 @ 90	55 @ 65	
Bay of Fundy	@ 1 00	*Not sold*	*Not sold.*	
Belleville	90 @ 1 25	1 25 ℔ 1 35	"	
New Brunswick	@ 1 00	90 @ 1 00	"	
Caen	@	@ 2 00	"	
Marble (℔ *cu. ft.*)				
Lee, Mass	@	1 75 @ 2 50	*Not sold.*	2 00 @ 2 50
Rutland, white	@	@ 3 00	3 50 @ 5 00	2 25 @ 2 50
Sutherland Falls	1 25 @ 1 75	@ 2 00	3 50 @ 5 00	2 50 @ 4 00
Glens Falls, black	@	2 00 @ 3 00	*Not sold.*	4 00 @ 4 50
Italian, blue-veined	@	50 @ 60	@ 4 40	— @ —
" Sienna	@	3 00 @ 3 50	*Not sold.*	3 25 @ 6 50
Tennessee, red	@	1 25 @ 2 50	@ 4 00	2 00 @ 3 00
" Knoxville	@	85 @ 90	@ 4 00	@ 1 50
Pennsylvania, blue	@		*Not sold.*	2 23 @ 2 50
Vermont, white	@	1 50 @ 2 00	3 50 @ 5 00	
Slate: Roofing (℔ *square*)				
" green	7 00 @ 8 00	4 50 @ 7 00	6 25 @ 8 10	6 25 @ 7 00
" purple	7 00 @ 8 50	5 50 @ 6 50	@ 8 60	@ 7 00
" red	@ 15 00	13 00 @ 14 00	— @ 16 00	@ 12 00
" black, Lehigh	— @ —	Brownville, Me.	7 20 @ 7 60	@ 4 50
" " Chapmans	— @ —	6 50 @ 9 00	7 30 @ 8 00	@ 4 25
Tiles, Am. ℔ M	@	Monson, Me.	*Not sold.*	@ 15 00
		5 50 @ 8 00		
LUMBER.—℔ M. (*Ordinary dimensions.*)				
Boards:				
Pine, 1st quality, clear	65 00 @ 75 00	50 00 @ 53 00	44 00 @ 49 00	
" 2d quality	55 00 @ 60 00	42 00 @ 44 00	40 00 @ 46 00	
" 3d quality	18 00 @ 22 00	35 00 @ 38 00	37 00 @ 44 00	
Spruce	@ 25 00	11 00 @ 12 50	*Not sold.*	
Hemlock	ea. 17 @ 18	11 00 @ 12 50	@ 10 00	11 50 @ 15 00
Yellow pine	20 @ 40	30 00 @ 33 00	@ 28 00	16 00 @ 18 50
Cypress	@	32 00 @ 35 00	@	@
Clapboards:				
Pine	@	33 00 @ 53 00	14 00 @ 22 00	—@—
Spruce	@	23 00 @ 30 00	*Not sold.*	—@—
Framing Timber:				
Pine			13 00 @ 15 50	25 00 @ 35 00
Spruce	14 00 @ 18 00	13 50 @ 14 50	*Not sold.*	18 50 @ 20 00
Hemlock	12 00 @ 15 00	@	13 00 @ 19 00	12 00 @ 13 00
Yellow pine	20 00 @ 30 00	21 00 @ 25 00		22 00 @ 24 00
Laths:				
Pine	@	2 25 @ 2 35	2 25 @	—@—
Spruce	@ 2 25	2 15 @ 2 25	*Not sold.*	2 25 @ 2 35
Shingles:				
Pine, shaved	5 00 @ 6 00	@	*Not sold.*	
Pine, sawed	4 00 @ 5 00	@ 4 50	2 25 @ 2 60	
Spruce, sawed	2 50 @ 2 75	@ 1 50	*Not sold.*	
Redwood	1 40 @	@ 3 00	5 50 @ 8 00	30" $10 @ 28
Cedar, split	@	@	*Not sold.*	24" 8 @ 21
Cedar, sawed	@	2 00 @ 3 50	@ 2 30	20" 5 50 @ 14
Cypress. Split....7 x 24	18 00 @ 20 00	5 50 @ 6 00	4 00 @ 4 50	13 00 @ 20 00
Miscellaneous:				
Piles ℔ ft.	4½ @ 6	Piles 6c. ℔ ft.	*Not sold.*	
Fence pickets, Spruce	8 00 @ 10 00	10 00 @ 18 00	Pine, 8 @ 12	12 00 @ 14 00
Cedar posts, 9 ft. (sq. posts.)	@	25 @ 35	9 00 @ 21 00	70 @ 1 25
Chestnut "	@	25 @ 35	*Not sold.*	28 @ 36
Finishing Woods: ℔ M. (*First Quality, Kiln-dried.*)				
Ash	@ 55 00	38 00 @ 48 00	35 00 @ 43 00	
Cherry	80 00 @ 120 00	60 00 @ 90 00	75 00 @ 85 00	55 00 @ 65 00
Chestnut	@ 55 00	38 00 @ 50 00	45 00 @ 50 00	60 00 @ 80 00
Butternut	40 00 @ 60 00	60 00 @ 70 00	50 00 @ 60 00	55 00 @ 65 00
Mahogany, Baywood	@ 180 00	100 00 @ 150 00	150 00 @ 180 00	100 00 @
" St. Domingo	@ 350 00	180 00 @ 250 00	250 00 @ 300 00	
Maple	45 00 @ 50 00	45 00 @ 65 00	30 00 @ 35 00	30 00 @ 50 00
Oak, red	@ 70 00	@ 50 00	35 00 @ 40 00	35 00 @ 45 00
" white	@ 70 00	@ 55 00	35 00 @ 40 00	55 00 @ 65 00
" quartered	@ 90 00	65 00 @ 70 00	45 00 @ 50 00	70 00 @ 80 00
Sycamore quartered		@ 65 00	45 00 @ 50 00	
Pine, clear	65 00 @ 70 00	30 00 @ 65 00	45 00 @ 50 00	65 00 @ 90 00
Redwood	60 00 @ 70 00	60 00 @ 70 00	60 00 @ 70 00	100 00 @
Rosewood ℔ lb	@ 6		@ 7	
Walnut, black	125 00 @ 150 00	85 00 @ 100 00	80 00 @ 100 00	160 00 @ 200 00
Whitewood	45 00 @ 50 00	38 00 @ 45 00	30 00 @ 35 00	20 00 @ 30 00
Yellow pine ℔ M	@ 45 00	40 00 @ 45 00	30 00 @ 35 00	30 00 @ 35 00
Gumwood, best red			30 00 @ 35 00	
PAINTS. (*In oil,* ℔ *lb.*)				
White lead, Am. (℔ gal.)	5½ @ 6	5½ @ 6	5½ @ 5½	4 @ 5½
" Zinc, "	5 @ 8½	5 @ 8	7 @ 11	4 @ 6
Red, Am.,	6 @ 6½	6 @ 6½	5½ @ 6	
" Venetian	6 @ 10½	7 @ 12	1½ @ 2½	7 @ 10
" Vermilion	55 @ 60	55 @ 60 dry	50 @ 60	Am. 14 @ 22
Red Indian, Eng	12 @ 20	12 @ 20	12 @ 20	12 @ 20
Yellow Ochre	6 @ 13	7 @ 12	3 @ 15	7 @ 9
" Chrome	12 @ 20	18 @ 25	12 @ 25	12 @ 25
Green (chrome)	8 @ 13	8 @ 20	8 @ 20	9 @ 15
Green, Paris,	25 @ 40	25 @ 40	16 @ 35	16 @ 22
Black, lamp,	15 @ 25	15 @ 25	8 @ 30	8 @ 12
Blue, ultramarine	12 @ 18	18 @ 30	10 @ 35	11 @ 35
Oil, linseed, (raw) (℔ gal.)	53 @ 54	54 @ 59	48 @ 49	52 @ 55
" " boiled	56 @ 57	57 @ 62	51 @ 53	57 @ 59
Turpentine	30 @ 31	35 @ 42	32 @ 34	@ 45
Varnish, coach	@	1 50 @ 6 00	1 25 @ 2 00	1 75 @ 5 25
Shellac		2 50 @ 3 00	3 25 @ 4 00	1 10 @ 1 75
Putty	2 @ 3	2 @ 4	02 @ 03	2 @ 2½
Whiting (℔ cwt.)	50 @ 90	1 @ 1½	1 @ 2	1 @ 1½
Paris white, (Eng.,)	2 @ 3	2 @ 3	2 @ 2½	1½ @ 1½
Litharge, Am	5½ @ 5½	6½ @ 7	6½ @ 10	6½ @ 7½
Sienna, (burnt)	12 @ 17½	14 @ 20	4 @ 16	9 @ 14
Umber, "	11 @ 16½	14 @ 20	@ 10	9 @ 14

(*Continued on page* vii.)

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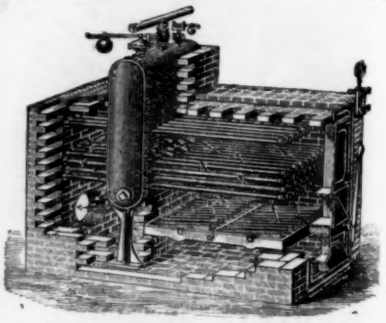

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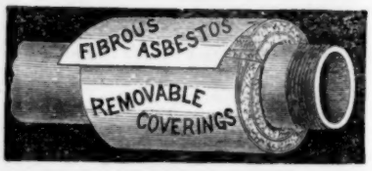

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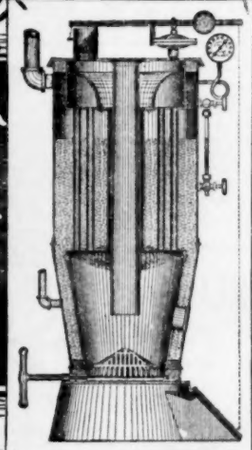

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UNIFORM HEAT * NO GAS * DUST, OR SMOKE * NO OBJECTIONS

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Newell Universal Mill Co.

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This radiator is constructed upon the principle *of a coil*. A diaphragm separates one leg of the loop from the other, so that steam entering passes up one leg to the top of the loop, down the other leg to the opposite side of the diaphragm, thence into the next loop, and so on through the Radiator, securing a PERFECT CIRCULATION and an IMMEDIATE heating of the whole Radiator. It is adapted to **High** or **Low** pressure, and surpasses all others in the **perfection** of its operation, beauty of design, and simplicity of construction. The loops or sections are made complete and independent of each other, and each loop is screwed to the adjacent loop by a double-thick wrought-iron nipple, thus forming a perfect joint not affected by contraction or expansion.

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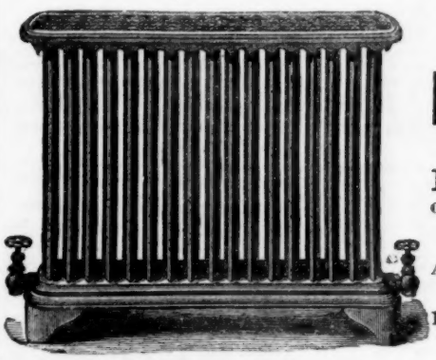

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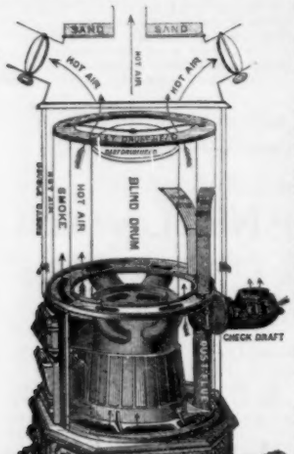

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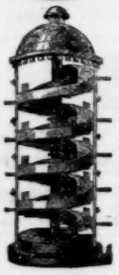

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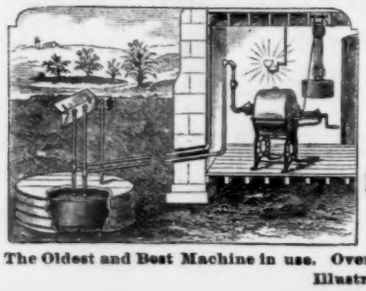

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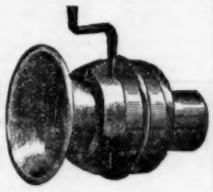

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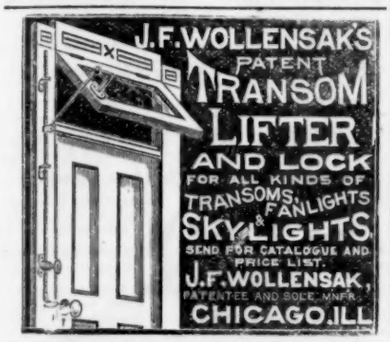

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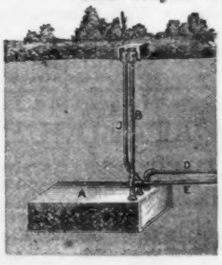

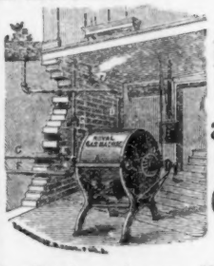

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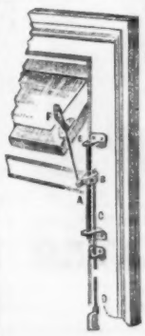

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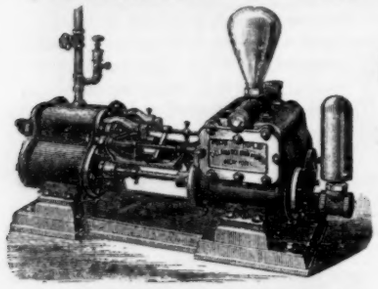

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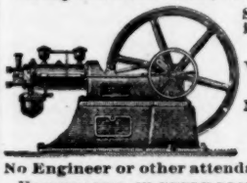

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NOVEMBER 22, 1884.

Entered at the Post-Office at Boston as second-class matter.

CONTENTS.

SUMMARY: —
The Broadway Surface Railway. — A Plumber's Trick. — A Suit for Payment for unexecuted Designs. — The Victor Emmanuel Monument. — The Explorations at Tanis. — A New Process for hardening Stone. — Tenement-House Legislation. 241
RECENT IMPROVEMENTS IN BUILDING. — I. 243
PHOTO-MECHANICAL PRINTING PROCESSES. — III. 245
EIGHTEENTH ANNUAL CONVENTION, A. I. A. 246
THE ILLUSTRATIONS:
The Charter-House, London. — Sketch of a House Entrance. — The Certosa, Pavia, Italy. — Block of Houses, Newark, N. J. — Church of St. Nichols, Belgium. — St. Ouen, at Rouen, France. 246
THE WESTERN ASSOCIATION AND THE AMERICAN INSTITUTE OF ARCHITECTS. 248
UNITARIAN CHURCH BUILDING. 248
COMMUNICATIONS: —
To Calculate the Wind-Pressure. — The Composition of Hematite. — Painting Marble. 249
NOTES AND CLIPPINGS. 250

A CONTRACT has been at last made by which the New York Board of Aldermen concedes to the Broadway Surface Railroad Company the right to build and operate a horse-railroad on Broadway from the Battery to Fifteenth Street, under certain restrictions; the most important of these being the requirement that each car must have two horses, and a conductor and driver, unless, with the consent of the abutting owners and of the city authorities, some improved motive power should be substituted for the horses. In consideration of the grant of this privilege, the Company is obliged to pay into the city treasury for five years, on the first day of November in each year, a sum amounting to three per cent of its gross receipts for the year just past. After the five years have expired, the annual payment is to be raised to five per cent of the gross receipts. In addition to this, the Company must, after the road has been one year in operation, pay into the city treasury forty thousand dollars in cash, and the same amount annually afterwards. This payment of forty thousand dollars a year is equivalent to four per cent interest on one million dollars, which is regarded as the value of the privilege bestowed by this ordinance. A proposition was once made, when the concession for a Broadway surface road was contended for by two corporations, that the franchise should be sold at auction to the highest bidder; but some one pointed out that as the privilege desired consisted simply in the consent of the Board of Aldermen to a certain bill, there was an obvious impropriety in selling the decisions of the Board at auction, and the payment of an annual sum was very prudently substituted.

THE *Sanitary Engineer*, in a recent issue, describes a plumber's trick which deserves to be remembered by those whose duty it is to guard innocent persons from the consequences of similar rascality. It seems that one of the inspectors of the Board of Health in New York, while examining a row of new houses in an excellent neighborhood, discovered some vent-pipes of lead projecting above the roof, and soldered to the tin of the roof in the usual manner. A few years ago this would have been an indicationof very good work in the house below; but the present New York plumbing law requires all pipes which extend above the roof to be of iron, probably on account of the danger that lead pipes may be injured or cut away. The lead vents, being thus in violation of the law, attracted attention, and a closer examination revealed the fact that they were simply dummies, consisting of short pieces of lead pipe nailed to the tin roof and soldered. They did not even go through the roof boards, and, of course, had no connection with the plumbing work below. This evidence of ingenuity on the part of the plumber naturally led to a closer inspection than usual of the plumbing work inside the house; and all the washbowls in the upper story of the row of five houses were found to be provided with back vents from the traps consisting of inch-and-a-half lead pipes inserted into the space between the studs of the nearest partition, and terminating there. The ends of the pipes, instead of being left entirely open, were hastily hammered together, but crevices remained through which an ample supply of air from the drains was diffused through the adjoining rooms. The contractor of the plumbing work, who lived near by, was called before a justice, and made the usual defence, that his workmen had arranged the pipes in the manner complained of without his knowledge, and for the purpose of getting him into trouble. The justice, however, who had probably heard before of this strange maliciousness on the part of workmen, thought it only prudent to put the contractor under bonds to show his innocence before the proper court.

BUILDING gives an account of a recent case, decided in the Supreme Court of New York, in which an architect, who had been employed to prepare plans and specifications for a certain building which was never carried into execution, was obliged to sue for his pay. His bill was two and one-half per cent for the plans and specifications, and two hundred dollars additional for making measurements and surveys, and for consultations. The defendant seems to have been a prey to the common delusion that if an owner concludes not to carry out the plans made for him, the architect who made them should not expect any pay, and, to judge from the account, urged this as a reason for not settling the bill; but he, or his lawyer, discovering that this plea would not count for much in court, took refuge in a different claim, and represented that the plans were not working drawings, but simply preliminary sketches, and as such should only be valued at one per cent on the proposed cost, instead of two and a half. Ten out of the twelve jurors are said to have agreed with the architect in his valuation of his work, but the other two objected, and a verdict was at last rendered awarding him five hundred dollars. The cost of the building was to have been twenty thousand dollars, so that this was two hundred dollars less than the amount of the claim. Why the charge should have been cut down we cannot see; and we assure our readers that it is very unusual for a jury to make such deductions from an architect's charges, based on the ordinary schedule. The case, however, still serves to illustrate the maxim to which we so often call the attention of the younger members of the profession,— that every man who, at the request of another, does with reasonable skill and care any professional work, is entitled to be paid for it, and can collect his pay by legal means. It is useless for the employer to argue that "he only asked for sketches," and that "it is usual for architects to make sketches without charge, in the hope that they may bring them employment," or that "architects' sketches are always understood to be subject to approval," or that "architects make no charge, if their designs are not carried out," and so on. The fact is, that an architect's work is never presumed to be done subject to the condition that it is not to be paid for unless the person for whom it is done happens to fancy it. If an architect is so foolish as to agree in unmistakable language to such terms, he is at liberty to do so; but, unless he is shown to have done so. all courts will hold that he expected to be paid, and that the one who employed him is bound to pay him, whether he likes what was done for him or not. If a man, for instance, wants the privilege of choosing from a number of sketches for a certain building, he can have it by paying a number of architects what they ask for making such sketches; but there is no law or custom by which he can obtain them for nothing, unless those who are to make them expressly agree beforehand to make no charge for them. We are anxious to insist upon these points, as we know something of the experiences of young architects, and are certain that many thousands of dollars are now fairly and honorably due to the more modest members of the profession, which they are kept out of solely on such pretexts as these. Until we can have here some such protective organization as that now just established among the French architects, it would be, perhaps, impolitic to counsel all our readers who may be in such case to fly to the law for redress; but we will, at least, advise them for the future to let no timidity or bashfulness prevent them from giving their clients to understand that under all circumstances their labor is to be paid for. If they wish to enter into competition, there is nothing to prevent them from doing so; but it should be explicitly understood that in such cases they give valuable services at a reduced price in return for a fair chance of securing an important commission. We need

not say here what constitutes "a fair chance" in competition; it is sufficient to point out that if fair conditions are required by competitors, the law, which cannot conceive that a professional man in his right mind should give his services without expecting to be paid, will see that they are complied with.

THE cholera in Italy has had the effect of delaying the execution of the great monument in Rome to King Victor Emmanuel. Our readers will remember that in the second competition the first prize, with the execution of his design, was awarded to the Signor Giuseppe Sacconi. The drawings were advanced rapidly, and the 2d of last October, the anniversary of the *plébiscite* by which Rome passed under the dominion of the King of Italy, was appointed as the day for the laying of the corner stone; but the cholera epidemic was at that time nearly at its height, the present king was busy in caring for his afflicted subjects, and the Victor Emanuel monument was forgotten, and the laying of the corner stone indefinitely postponed. Meanwhile, however, the completion of the memorial by the statue which the monument is to guard had been provided for, and another competition, which was announced in August, invites models of an equestrian statue of the late king. The statue, according to the conditions of the programme, is to be eight metres high, and to be placed on a pedestal of twelve metres in height, the whole forming a most imposing object, sixty-seven feet high. The models are to be at one-half the full size, and must be delivered by the 28th day of February next. The author of the best design will be employed to carry it into execution, and a second prize of six hundred dollars will be given to the next in merit.

IN recognition of the very moderate interest which American scholars and scientific persons have taken in the operations of the Egyptian Exploration Fund at Tanis, a vote has been passed by the members of the Association to present a portion of the objects discovered there to the Museum of Fine Arts in Boston. The collection is to be made as the work proceeds, under the care of a committee, and of Mr. Petrie, the director of the explorations, who will give to the Boston Museum the second place in the selection of specimens, the British Museum being first. Two or three hundred of the smaller objects already found are to be sent over at once, including bronze furniture and fittings, a beautiful group in porcelain, some colored woven garments, and many small figures and other articles. It seems that Mr. Petrie was unable to move the heaviest objects found in the excavations, on account of the low state of the Nile at the time operations were closed for the season, in June, but they will undoubtedly be sent away at the first opportunity, and shared between the English and American Museums. The explorations are to be recommenced immediately, and, judging from the results of the first year's work, a rich reward awaits the association.

AT the recent Exhibition of Decorative Art in Paris, a new process was shown for hardening stone, which seems to have attracted much attention. Most architects know something of the old processes employed for this purpose, in which silicate of soda or potash, dissolved in water, was spread over the surface of the stone to be hardened, and either left there to find its way into the pores of the stone and fill them with a glassy substance, or applied in alternation with chloride of calcium or some other soluble lime salt, which decomposed the alkaline silicate in the pores of the stone, depositing insoluble crystals of silicate of lime, and setting free chloride of potassium or sodium, which soon washed out. None of these processes have been found quite satisfactory. The alkaline silicates are not easily dissolved to a thin liquid in cold water, and when a hot solution is applied to stone, it forms a jelly as it cools, so that it penetrates but a short distance into the stone, and the hard skin formed by the superficial filling of the pores is liable to be thrown off by frost. Moreover, the soluble silicates often effloresce in dry weather, disfiguring the stone containing them, while, even if the stone is so skilfully treated as not to show spots from the unequal absorption of the silicate solution, any neighboring windows spattered with it are irretrievably spoiled. On account of these inconveniencies in the use of the alkaline silicates, some experiments have been made with hydrofluosilicic acid, which acts strongly on limestones, dissolving them to form hard, insoluble compounds, which are deposited in the pores of the stone. This process is not entirely satisfactory, since the acid acts so violently on the superficial portions of the stone that it does not penetrate far, and the new method introduced by Messrs. Faure and Kessler seeks to improve the operation of the hardening agent by substituting soluble fluosilicates for the acid itself. The fluosilicates act upon limestones but slowly, and it is found that the solution penetrates three or four inches into the stone before the decomposition by which the lime is dissolved, to form real fluor spar in the pores, has advanced far enough to check absorption. Twenty-four hours is, however, enough for effecting the reaction, and on the day after the application of the liquid the stone is completely hardened. So hard and tough is the substance formed by the combination of the fluosilicates and the lime that a mere powder of the limestone may be used to fill cavities; and this, when saturated with the solution, will become nearly as hard as the rest.

A SUGGESTION is made by the *Sanitary Engineer* in relation to tenement-house reform which is quite worthy of the intelligent common sense of that excellent journal, and deserves to be kept constantly in mind by those who may be interested in that important subject. Mr. Joshua, or Joseph, Chamberlain, of England, once put in compact form the theory of tenement-house legislation by saying that a man should no more be allowed to offer unclean or unwholesome houses in the market than diseased pork or beef; and this assertion, which few would wish to dispute, indicates clearly the duty both of those who own such houses and of the authorities who have the right to control them. The answer to Mr. Chamberlain's position from those who wished to find excuses for neglecting their opportunities to reform the poorer class of dwellings has always been that the tenants of the cheapest houses preferred filth, and, if placed in the best of model houses, would speedily reduce it to the condition which suited their habits and tastes. There is, unfortunately, no doubt of the truth of this; and no plan for improving the dwellings of the poor can be thoroughly efficient which fails to consider that thousands of persons, many of whom, too, are perfectly honest and virtuous in their humble way, like to sleep in a sociable manner, on the floor of their apartment, in company with fifteen or twenty other congenial souls, and firmly believe that they owe their good health, or strength, or beauty, to a conscientious abstinence from soap and water, and to the avoidance of such unnecessary exertion as would be implied in going down-stairs to empty a pailful of slops, instead of throwing it out of the nearest window, or in climbing back and forth from the basement after a stick of kindling-wood, instead of twisting out one or two convenient stair balusters. There is, however, as the *Sanitary Engineer* points out, no real reason why the tastes of such tenants as this should be consulted by landlords to the detriment of the rest of the community; and the fact that a few persons like dirt should no more justify real estate owners or boards of health in affording them the opportunity to enjoy it than the proof of a depraved appetite on the part of certain persons should excuse a license to butchers to display tainted meats upon their tables. That careless and improvident tenants will quickly make rooms unfit to be inhabited by decent persons does not alter the duty of the health inspectors to compel the landlords to cleanse their rooms or buildings as often as they begin to grow dirty. The landlords are at liberty, if the expense of keeping their buildings clean is too great for them, to turn out their filthy tenants, and take decent ones in their place; and if the former find themselves rejected, on account of their nastiness, from every sort of dwelling, they are likely, rather than camp out in the street, to begin making some attempt, as the *Sanitary Engineer* says, "to live in accordance with the customs of civilized beings on the Western Continent." However great our respect for individual liberty, there is no place in this country for persons whose habits of life endanger the lives or health of other people; and the simplest and easiest way of reaching and reforming, or driving away such persons, is by the medium of the tenement-house laws, which, as a rule, put it in the power of local boards of health to compel all the inhabitants of the towns of which they are the guardians to conform to certain necessary regulations, or seek a residence in some less squeamish community.

RECENT IMPROVEMENTS IN BUILDING.[1]—II.

IN many parts of New York water is more dreaded than fire, and the same ingenuity which is generally sure of its reward there has produced a method, now very extensively used in the low-lying districts along the Hudson River, by which cellars below the water-line are lined with several thicknesses of felt soaked in Trinidad asphalt, and rendered entirely water-proof. The main difficulty about the application of this method, which seems simple enough, is the necessity for providing against the hydrostatic pressure of the water outside.

If the line of the ground-water, in high tides or heavy rains, should rise six feet or more above the floor of the protected basement, as often happens, the cellar is turned into a boat, often of very large dimensions, whose tendency to float is converted into an upward pressure upon the parts of the cellar floor least able to resist it. No concrete will keep out the water under such circumstances. Unless the layer is very thick, it will be forced up by the pressure and broken to pieces, while, if it is strong enough to withstand this strain, the water will be driven through it in drops like dew, which collect and make the basement damp. In using the felt, therefore, which, though perfectly water-proof has little strength, it is necessary, after protecting every part of the cellar with a continuous coating, brought well up on the walls, to provide for holding it in place by a mass of concrete or masonry. To save expense, the usual way is to cover it with brickwork, laid in the form of a shallow inverted arch, which gives great resistance at the place where the strain is most severe. The hollow of the arch is then levelled up with concrete, and in the best work a flooring of rock asphalt is laid on the concrete, to prevent it from accumulating dampness from the inside of the building. The felting turned up against the walls, piers and columns is lined in the same way with a mass of concrete from twelve to twenty inches thick, according to the pressure which must be resisted. The cost of this operation is considerable, averaging perhaps a dollar a square foot; but it is effectual and permanent, and millions of dollars' worth of dry goods and groceries are now stored, perfectly dry and safe, in rooms below the water-line of high tides, and some even below the low-water level of the North River. As architects and engineers often pronounce it impossible to keep a basement below the water-line dry, it is worth while to remember this system, which is not less valuable because it is patented, and is at least a great advance over the old mode, still used here, of enclosing wet cellars with sheet piling, filled in with boxing-clay, which is itself far from being impervious to dampness, while it leaves the floor almost unprovided for.

Next to the great commercial buildings, in which an amount of ingenuity has been displayed proportionate to the value of the goods to be cared for and handled in them, the newer first-class apartment-houses show the greatest advances in the art of construction. Especially in plan, the modern houses are much superior to those of ten years ago, and are not surpassed by those of Paris or London. This is probably due in part to the independence of our architects, who care little for tradition, and soon cast aside a time-honored arrangement if they see reason for doing so. In this way the old-fashioned central court-yards, large and small, enclosed on all sides, which all Parisian plans show, have in New York and Boston become obsolete. Experience has shown conclusively that such court-yards, even if they are large enough to furnish light to the rooms which surround them, form great reservoirs of stagnant air, unmoved by the winds which blow outside, and constantly accumulating foul vapors, which they receive from the surrounding kitchens and rubbish holes, to diffuse them again in a more advanced stage of putrefaction, through the bedroom windows which look out upon them. In Paris, where court-yards are generally larger, and the buildings less high than with us, a strong feeling against them has set in among architects, but New York deserves the honor of having been first to find means for abolishing them, and to replace them by open spaces, which, although tortured by the complexity of plan which the new mode of arrangement involves into shapes indescribable by any name in geometry, are always open at one side or end to the outer air, so that if the wind is from one side it blows into the space, and if from the other side it draws the air out of it, to be replaced by a fresh supply from above, in either case the interior of the building being kept supplied with an atmosphere which, if not so pure as that of a mountain-top, is at least infinitely preferable to the ancient miasma of the old-fashioned enclosed court.

In other respects the newest apartment-houses furnish interesting examples of a very difficult kind of domestic planning. The best architects now, when commissioned to cover a lot, say a hundred feet square, with such a building, place before themselves, as indispensable conditions, that every room and bath-room shall have at least one window opening to the external air, and this not on a court, or the five-foot square shafts, appropriately called wells, which abound in the apartment-houses of ten or fifteen years ago, but on a space into which the wind blows, and the sun shines. Besides this, every apartment, out of the four or five which would occupy each floor of such a building, must be at one end closely connected with the main hall and the principal elevators, and at the other end with the servants' hall and stairway and the servants' elevator; and the planning must be so compact as to give the minimum of passage way, which, of course, subtracts from the space available for renting. To fulfil all these conditions, especially in a fire-proof building, which allows less liberty than one of lighter construction, requires not only study and skill, but a certain courage in devising radical methods for securing a given end. Not long ago, for instance, the novel plan was introduced of making the front portion of such a building consist exclusively of parlors, dining-rooms, and other reception-rooms, while the bedrooms were collected in the rear portion, and space was thus saved by putting three stories of bedrooms to two stories of reception rooms. This arrangement, which goes under the name of the Duplex system, and is, I think, patented, is economical of room, and the short flights of stairs, up or down, which are necessary to connect the front and rear rooms on the different levels, are not found objectionable, so that a considerable number of the largest houses in New York are built in this way, including at least one which contains fifteen stories of rooms in the rear, or bedroom portion. The most serious objection made to the duplex planning is the rather trivial one that in the evening the hot-air and burnt-gas from the parlors run up the short flights of steps and fill the bedrooms; but this could easily be prevented by proper ventilation of the passage-way.

A still more economical system, however, has been employed within a year or two, in which each apartment, instead of comprising front and rear rooms on different levels, is in two stories, connected by a small private staircase. In this way from one-half to two-thirds of the space usually given up to corridors is saved, as it is no longer necessary to carry long passages past all the other rooms to reach a bedroom at the end of the flat; another great economy is made by having the low-studded bedroom stories alternate with the high stories devoted to reception-rooms, and the bedrooms are much pleasanter than in the Duplex system, as they occupy, equally with the parlors, the street fronts and sunny portions of the house.

The single short flight of stairs in each apartment is not generally regarded as an inconvenience. On the contrary, many people like to have their parlors isolated by a tier of bedrooms from those of their neighbors above or below them, and the stairway, well-arranged, forms an effective decoration for the apartment.

In respect to plan and construction, the best New York apartment-houses have thus reached a high degree of excellence. The next considerable advance will probably be in the direction of ventilation. Already something has been done: the kitchens of all the good modern houses are provided with flues which, being high and straight, act very efficiently, and the halls are generally ventilated by skylights, with open sides or something else of the kind; but attempts at changing the air of the rooms systematically are rare. One or two of the newest houses provide for furnishing fresh air to each room by means of steam radiators with fresh-air supply taken from the outside, on the so-called direct-indirect system of heating, but the constant withdrawal of foul air from all parts of the rooms which forms the proper supplement to this system has not yet been attempted in apartment-houses, although it has in several office-buildings.

Strange as it seems, the last structures to feel the effect of improved methods are dwelling-houses. A man who would not think of risking his valuable business papers in anything but a fire-proof office-building will leave his wife and children with perfect equanimity in a house, such as many of the cheaper apartment-hotels, where, in case of fire, they would have little or no hope of escape, and families which live perfectly contented in dwelling-houses with oil-cloth carpets in the halls, and steep wooden stairs to go to and from their bedrooms, have no words to express their disgust for an apartment-house without pavements of tile or marble, and costly elevators to carry them up and down. Still, improvements are made, although generally in matters of detail, rather than in systematic methods of construction.

The best tendency of modern house building is toward the more extensive introduction of light. I remember a certain house on Beacon Street in Boston, on the corner of one of the cross streets, having thus three sides open to the light, in which the only bathroom in the house, a most unpleasant apartment, was situated in the central portion, against the only dark wall of the building, where it received no light whatever, except from a gas-jet, and no air, except what was drawn into it under the door from the hall-way, to be restored again, with heightened flavor, for distribution among the bedrooms overhead. Such planning as this, although still popular among cheap builders, is not now tolerated by the best class of house owners. As those who have tried it know, the application of systematic ventilation to dwelling-houses is a very difficult matter, but light can be had without the exercise of much science, and most good city houses in the middle of a block have the central portion now lighted by a shaft, at least five feet square, covered by a skylight, with a ventilator to give a slow current through it, and illuminating very effectively, besides airing moderately, the bath-rooms and closets grouped around and under it. With the help of such shafts as these, and of the modern fashion of leaving plumbing work open, without casings or enclosures, the middle of city houses is no longer, as it once was, the breeding-ground of Croton-bugs and cockroaches, and the source of the sickly smells which we know so well.

[1] A paper read before the Society of Arts, Boston, October, 1884, by Mr. T. M. Clark. Continued from p. 232, No. 464.

Beyond such general tendencies as these, little change is to be remarked in domestic building as a whole. Individuals please themselves by establishing dynamo-machines in the basement of their houses, and lighting their rooms with incandescent lamps; or by setting up Ericsson pumps for supplying the building with water, or small passenger elevators for their convenience, but such fancies are always exceptional, and the average owner is rarely willing to try any experiments, or incur any extra expense, in the construction of his house, unless, as is now becoming very common in New York, he adopts a completely fire-proof construction.

The one subject which now interests any large number of householders is drainage, which though not strictly a department of building, is at least very intimately connected with it. It is perhaps best not to say anything of the improvements in interior drainage, that is, plumbing. That subject could hardly be entered upon without going to considerable length, and using a great deal of illustration; and it may be sufficient to know that plumbing appliances are now produced in great variety, with which any good plumber can fit up a house with perfectly wholesome, durable, and clean apparatus. The tendency in such work is decidedly toward reducing the number of appliances, and improving their quality. Double-thick waste-pipes, of cast or wrought iron, are now used where single-thick were until lately thought sufficient, and white stoneware is rapidly superseding enamelled iron and soapstone for kitchen sinks, bath-tubs and wash-trays.

In regard to exterior drainage, particularly for country houses, since that of city dwellings requires little thought on the part of architect or owner, the last few years have witnessed a rapid development of the practice of doing away with that object of the sanitarian's particular hatred, the old-fashioned leaching cesspool. In one or two towns, where public sewers have been provided, the use of such cesspools, whether new or old, has been summarily forbidden, and even where there are neither sewers nor health regulations, the sense of the unwholesomeness of a soil saturated with filth has become quite generally diffused in the community. In places without sewers, the only practicable alternative to the use of cesspools is the utilization of house wastes on the land, particularly by the system known as subsoil irrigation, and in some towns this has become quite common.

As the subject is a very important one to persons living out of the reach of sewers, it may be worth while to mention the modifications which have taken place in the practice of this system since its first introduction. Even now, the mode of applying it varies in nearly every case, but something, at least, has been learned from experience. Ten years ago, as those who have read the works of the most enthusiastic advocate of the system will remember, it was customary to provide houses in which it was to be applied with two drain-pipes, one taking the more purely liquid wastes, which were discharged over a Field's flush-tank, usually buried in the ground near the house, and the other carrying such drainage as might contain solid or semi-solid substances, which could not be passed through the flush-tank. This drain joined the drain from the flush-tank at some distance from the house, and both then proceeded together to a tight brick cesspool or settling basin, of twelve or fifteen hundred gallons capacity. A pipe from this settling basin, usually 4 inches in diameter, was led to some part of the ground about 15 inches below the surface, and there began to throw off laterals, consisting of round drain-tiles, 2 inches in diameter, with collars over the joints, all laid about 12 inches below the sod. From 500 to 1000 feet of these were put in for an ordinary dwelling-house, in lines 3 or 4 feet apart, the main 4-inch pipe being carried out far enough to supply the whole system.

This method, as described in books still popular, has not proved entirely satisfactory. The old flush-tanks were expensive, and the siphons which formed a part of them soon became clogged with grease, and had to be taken up frequently, and the grease melted out, while the open grating over which the waste-pipes discharged was anything but pleasant to sight or smell. The pipes with collars over the joints also proved unsuitable. The collars fitted so closely that the sewage liquids, on their way out of the joints into the ground which was to absorb them, left solid particles of that curious black sediment which forms in sewage, entangled between the collar and the pipe, and this obstruction rapidly increased, until the flow was stopped at that joint, when the same process was repeated at the next. The trouble with the flush-tanks was the most serious one. The object of using them is, of course, to give an intermittent discharge, by which the liquid from the settling tank is sent forcibly into the outlet-pipes, and through their joints into the ground, and this is a very desirable one, but in my own practice, after struggling with a flush-tank for a year or so, it was finally cut out and abandoned, and the sewage has been disposed of for five or six years since with much less trouble than before, while in another case, where, on account of this experience, no flush-tank was put in, and only one drain for the whole house, the irrigation-pipes have done their duty faithfully for five years without giving any trouble beyond a single stoppage in the main outlet, a few feet beyond the settling tank, which was, or could have been, remedied in fifteen minutes. In this instance the round pipes were used, but without collars, the pipes being simply laid end to end, with an interval of a quarter of an inch between them, and, as I recollect, a bit of paper laid on each joint to prevent the earth from falling in and obstructing the pipe. It is often said, and not without reason, by engineers, that a subsoil irrigation system without flushing apparatus is sure to choke rapidly, but this particular set of pipes has worked so long and efficiently in a soil so compact that the leaching cesspools of the two neighboring houses, built at a cost nearly as great as that of the irrigation system, began to overflow in six or seven months after they were put into use, that the experiment cannot be considered very dangerous, and the saving of the expense and care of the flush-tank is an important matter for most families.

The flushing system is now, however, somewhat modified, so that it gives much less trouble in use, and there is, of course, an advantage in being able to apply the flushing action for preventing sediment in the pipes. In order to secure this result in a way which should be at once less expensive and less troublesome than the siphon, I had occasion a year ago to try an experiment which resulted favorably, and as it is, if not the latest improvement, at least the latest modification in the subsoil irrigation system, I hope it is not necessary to apologize for explaining it. Briefly, the flushing apparatus, instead of a siphon, consists of a tumbling-tank, that is, a tank so shaped as to overturn when filled with water, recovering its balance as soon as emptied. This is set in a tight cesspool of brickwork in cement, occupying one corner, as shown on the diagram, and separated from the main part of the cesspool by a partition wall, which is built on a flagstone, set in the walls of the cesspools as they are laid up. An ordinary stoneware T is built into the little partition wall, the lower end dipping always below the surface of the water in the cesspool to avoid taking in floating grease, while the upper end is open to facilitate cleaning, and the branch projects through the wall and overhangs the tumbler tank. Just above the flagstone which forms the bottom of the tank compartment, a number of 2-inch sole tiles are built into the brickwork. These form the upper ends of as many lines or irrigation pipes, which diverge like an irregular fan from the cesspools. The whole is covered with flagstones. The cesspool holds about 1200 gallons, so that all the matters which get into it dissolve and settle before passing into the tumbler-tank. While any plumbing apparatus in the house is used, the waste water running into the cesspool, makes its overflow into the tumbler-tank, which, when full, overturns, throwing its whole charge directly into the mouths of the irrigation pipes. These pipes, which are all 2-inch sole tile, were not laid, as is the best, but most expensive way, in permanent channel tiles, but were simply placed in the bottom of the trenches, with a bit of asbestos paper over the joints, instead of the earthenware caps used where the cost can be afforded. The whole has continued to work perfectly until now, and the tumbler-tank shows no sign of deterioration. The advantages of the system seem to be its cheapness and simplicity, the spacious water-way everywhere, so that no obstruction can take place in the apparatus, and the accessibility of all the outlet pipes. Where these are laid as branches from a main stem, it is often necessary, when they show signs of clogging, to dig up the main line in order to obtain access to the laterals, which can then generally be washed free, without disturbing them, by a good stream from a hose; but by this modification the laterals are directly accessible, by taking the covering stone off the little compartment and lifting out the tank, without any digging outside. In the same way, the tumbler-tank and the compartment in which it works can be washed perfectly clean with a hose, or a few pails of water, without disturbing them, or interfering with their action, and in fact the whole system, with the exception of the cesspool itself, can be cleaned, repaired, or even renewed entirely, without stopping the use of any of the house plumbing for a moment. The cost of the brick cesspool is something like sixty dollars, which is about the same as that of a leaching cesspool suitable for disposing temporarily of the same amount of waste; the tumbler-tank made of galvanized-iron, with brass bearings, costs perhaps fifteen dollars; the outlet pipes costs two cents a foot, or ten dollars for the minimum amount which it is safe to use for a dwelling furnished with a bathroom, and the laying costs about as much more. These items constitute the whole expense, and bring the system within the means of every one. In fact, the cost of cleaning out a leaching cesspool of the same capacity, according to the experience of my neighbors, makes that in two or three years the more expensive apparatus of the two in actual outlay. Since my experiment, the same system has been introduced, as I believe, in about a dozen other places, and, so far as I can learn, with successful results.

Returning from this digression to purely building matters, I need only mention further a few disconnected details. Much of what might be called improvement in the art of construction is as yet rather a prospect than an actual and secure advance. Among the inventions which promise most for the future is certainly the application of the Bower-Barff preserving process for iron. For some reason, perhaps the cost of the process, it has come little into use, but the time cannot be far distant when our iron drain-pipes, as well as smaller articles of hardware, will be generally protected by it. Another possible improvement is to be found in the use of steel instead of iron for the simple forms of rolled beams and girders with which architects generally have to deal. It is remarkable that although we use so much less iron in building than the French or English, the American mills were the first to offer a full assortment of sections of steel building beams to architects, and what is more singular still, they are quoted here at the same price per pound as the iron beams, while the French steel beams, which are just coming into the market in Paris, cost considerably more than the iron. Four steel beams were very kindly presented to the Institute, by Mr. A. R. Whitney, of New

York, for test, but they proved much beyond the powers of the testing-machine, and are therefore preserved as samples. Other tests have, however, been made in this country, which tend rather to cast doubt on the advantage of the steel over iron for floors, partly because the sudden shocks to which floors are liable, act more unfavorably on steel than on iron, and partly because of the temptation which would be presented to builders or iron manufacturers to add stiffness to their beams by a proportion of carbon which would increase their dangerous qualities.

PHOTO-MECHANICAL PRINTING PROCESSES.[1] — III.

INTAGLIO PLATES. COLLOTYPES. PHOTO-MECHANICAL METHODS, AS APPLIED TO THE DECORATION OF POTTERY. MISCELLANEOUS PROCESSES.

PERHAPS the most perfect mode of printing is from an incised or "cavity" plate, as by this method the most minute markings can be reproduced with a degree of perfection which is not attainable either in the case of lithography or typography; but what is, perhaps, of more importance, is the circumstance that by adjusting the depth of the cavities to the requirements of the subject, not only can the engraver of the plate determine which portions of the print shall be covered with ink, but he can also determine how much ink shall be devoted to each part of the subject. To put the case in another way, not only can the engraver plot out his subject in black and white, but, within certain limits, he can determine how black the lines shall be.

Intaglio plates made by the aid of photography have been produced in great perfection by several methods; but up to the present time there has not been a very large market for them, partly, perhaps, from the considerable expense attending the work of printing from them. Intaglio plates are, even in the present day, generally printed from by hand, and this notwithstanding the fact that very excellent machines have been constructed for the purpose of plate printing.

One may generally put it that any transfer method for the production of a lithographic or typographic surface may also be applied to the production of intaglio plates, it being merely necessary to make a transfer in which the whites and blacks are reversed, to put this down upon a copper or steel plate, and to etch away the uncovered parts by suitable means.

It will be thus seen that, by the Ives method and its modifications, intaglio plates may readily be made; but there is but little inducement to do so, as such plates will not give much better impressions than the typographic or lithographic surfaces produced by similar methods, so that the great expense of printing from the intaglio plate steps in as a determining circumstance. There is, however, an exception in the case of printing surfaces to be used for pottery decoration. For this purpose intaglio plates are generally used, the method of printing being so rough and simple that the impressions cost about the same as prints from a type block. Hence it happens that intaglio plates made by means of photography have a special value to the potter. On the bed of this little press is a Woodbury relief made from a positive, that is to say, just such a relief as is used for the stannotype method, those parts of the relief corresponding to the whites of the original being high, and those parts of the reliefs corresponding to the darks of the orininal being low. Mr. Barker has uniformly inked it by means of an ordinary priater's roller, and let me now take an impression from the inked relief on a sheet of paper which has been grained in relief by means of pressure against a ruled plate. You see that a negative transfer in stipple is thus obtained, and when this is transferred to a copper plate, it serves as a resist to the etching fluid, a solution of perchloride of iron in water being one of the best mordants.

An extremely simple and expeditious method of engraving line subjects upon copper plates is the bichromated albumen process, practised with much success by Gobert and others. A plate is covered with a film of bichromated albumen, and exposed under a transparency until the whole of the ground, that is, the part not covered by the lines of the transparency, is rendered insoluble. The plate is next washed with cold water, so as to remove the albumen from the lines, after which the etching is effected by an alcoholic solution of ferric chloride.

The following details will be sufficient to enable the method to be carried into practice: One hundred cubic centimetres of albumen are mixed with a solution of two and a half grammes of bichromate of ammonia in fifty cubic centimetres of water, and, after having been well beaten, the mixture is filtered. A carefully cleaned plate of copper is now coated with the mixture, and, after the excess has been well drained off, the plate is dried at a very gentle heat, it being retained in a horizontal position meanwhile. The exposure required is by no means a long one, half a minute in moderate sunshine being sufficient in ordinary cases; but this must, of course, be learned by experience. Instead of developing (washing away the unaltered albumen) in plain water, it is better to use a weak solution of aniline red or magenta dye, as under these circumstances the ground becomes tinted, and the progress of the development can be watched. When the plate has been dried, nothing now remains but to varnish the back and edges with an ordinary black varnish, such as the so-called Brunswick black, and to etch. The etching bath is made by dissolving one part of perchloride of iron in five of alcohol; and ten minutes is generally a sufficient time for etching to the required depth.

On the table are some early specimens illustrating the photo-engraving method of Mr. Woodbury, now so successfully carried into practice by Messrs. Goupil & Co., of Paris. A gritty powder — crushed glass answers well — is incorporated with the gelatine used for making the Woodbury relief; and a leaden reverse being taken by pressure from the rough relief, the leaden reverse is reproduced by a twofold electrotyping. This reproduction of the leaden reverse is the printing plate.

The method which Major de la Nöe calls typogravure is, in reality, an intaglio process; but the printing is conducted as in the case of ordinary zincography. The details are as follows: A prepared zinc plate is coated with a film of sensitive bitumen by well-known means, and exposure is made under a transparency or a tracing, so that when development is carried on with turpentine or benzole in the usual way, the lines alone are bare. The plate is now etched with dilute nitric acid (1 and 40) until a depth of about a two hundred and fiftieth of an inch is reached, after which the plate is dried and once more coated with bitumen. The ground is now polished off with a stick of charcoal, leaving the bitumen in the lines, after which the plate is gummed and printed from by the usual zincographic method. This process is admirable for map work, although it is obviously inapplicable for the reproduction of subjects with widely extended blacks; and it has the advantage that the lines show no tendency to spread.

Before going any farther, you may with advantage look back at some of the older examples of photo-engraving in half-tone. Here are some specimens done by Talbot's etching process over twenty-five years ago, and they are admirable; while yonder is an example done by Mr. Dallas in 1864, and issued with the *Photographic News* of that year. These examples of work done by Pretsch twenty years ago are quite sufficient to prove that good work is not altogether a thing of to-day. Among the newer methods, that of Klic deserves special mention; and this specimen, which was issued with the "Year Book of Photography for 1882," will serve to show you how perfectly this method can render the lighter or more delicate shades of a photograph. Messrs. Annan Bros., of Glasgow, are working the process commercially in this country, and they have turned out some admirable plates. Klic has not published his method, but it is said to be an etching process, and the following details are given in a recent number of the *Photographic News*: —

"The process itself was a secret at first, but we are informed that the principle of working is as follows: A copper plate is dusted with powdered asphalt, and the plate is heated, so that the asphalt becomes nearly melted. A negative carbon print is now transferred on to the copper plate, and the plate, now covered with the negative in carbon, is etched, at first by a strong solution of perchloride of iron, which penetrates only the thinnest parts of the picture, then by a weaker solution of the same salt, the solution etching through the thicker parts. By employing more and more diluted solutions, it is possible to etch through thicker and thicker layers of gelatine, so that only the high lights remain unetched."

On the table are some exquisitely fine plates made by Messrs. A. & W. Dawson, the managers of the Typographic Etching Company, these being reproductions of subjects after nature, and of difficult drawings in wash.

Major Waterhouse has been remarkably successful, during the past few years, in making intaglio plates, and he has published the details of his method. The process is a modification of one introduced some time previously by Geymet, and it is based on the mechanical reticulation or breaking up of the Woodbury relief.

A Woodbury relief is developed upon a plate of silvered copper (but the relief need not be nearly so high as that required for the Woodbury process; in fact, an ordinary carbon print will answer), and when the relief is taken out of the developing water, it is dipped into a solution of potassium bichromate, drained, and dusted over with fine sand, this sand having been previously waxed by being heated in an iron pot and stirred up with a small proportion of wax. The layer of waxed sand is allowed to remain on the film until it is quite dry, when it is brushed off, leaving the gelatine granulated, or pitted, all over, the pits being deepest in the thick parts. The plate is now blackleaded, and a cast is made in the electrotype bath, this cast being the printing plate.

The specimens on the table will show you what excellent work can be done with this method; and you must remember that Major Waterhouse has not only published full working details,[2] but he has demonstrated the process before several gentlemen interested in the matter; moreover, he has not patented the method.

Before you are some fine examples of the application of photo-engraving to pottery decoration, by Mr. F. S. Emery, of Burslem, and one photographic method which this gentleman adopts for the

[1] Cantor Lecture delivered before the Society of Arts by Thomas Bolas, F.C.S., and published in the *Journal of the Society of Arts*. Continued from No. 464, p. 235.

[2] *Photographic News*; p. 1880, p. 568.

reproduction of pottery designs is of special interest. He coats a plate with sensitive bitumen, puts down upon this surface a transfer from the plate to be reproduced, and exposes to light until the ground is insoluble. Development is now effected with the usual solvents,— say, a mixture of turpentine and benzole,— only those parts of the ground which were protected by the transfer dissolving. The etching is effected by perchloride of iron.

As regards collotype printing, the progress to be reported is principally as regards extension of work and some minor details; while, as far as this country is concerned, the Autotype Company practically holds the thing in their own hands. Excellent as the specimens of foreign work may be which are placed before you to-night, you will find nothing better than the specimens shown by the Autotype Company. In Germany, the steam press is largely applied to the rapid production of collotypes; and before you are drawings of the machine collotype press constructed by Messrs. Schmiers, Werner & Stein, the most striking feature being the large number of rollers, used in order to ensure equal inking and damping. The transfer of collotypes to porcelain has been practised to a small extent, vitrifiable colors being dusted on afterwards; but the results obtained have not been very satisfactory.

Collotyping in colors from several plates has been introduced to compete with chromo-lithography for fine work; but the only examples exhibited in this courtry are, I believe, some shown by Mr. Meyerstein, and a selection of which is now before you.

Before you go, do not fail to look at some intaglio plates intended for the decoration of porcelain as made by Mr. Dallas; and you will also find some prints from them. Mr. Dallas does not tell us how he makes them.

As you may well suppose, the things omitted from this short course of lectures are more numerous than the things discussed, far more progress having been made than can be described in three hours.

You will, before you go, allow me to express the obligation we are all under to Mr. Barker who has so ably assisted me in showing you what ouy have seen.

EIGHTEENTH CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS.

THE Eighteenth Annual Convention of the American Institute of Architects held its session in the Circuit Court Room of the Federal Building in the city of Albany, N. Y., on the 22d, 23d and 24th of October.

The Convention was well attended and much interest evinced by its members in the business brought before it, and in listening to the Reports of Chapters and Committees. President Walter presided; his annual address was received with marked attention and respect. The Report of the Board of Trustees showed a satisfactory increase in the professional membership of the Institute, both in the Fellowship and Associate grades. The following list comprises the full number of elections since the Seventeenth Convention: —

FELLOWS BY PROMOTION.

M. Fred Bell, Fulton, Mo.	E. H. Kendall, New York, N. Y.
W. C. Smith, Nashville, Tenn.	W. G. Preston, Boston, Mass.
Arthur Rotch, Boston, Mass.	E. Townsend Mix, Milwaukee, Wis.

FELLOWS BY FIRST ELECTION.

A. H. Stem, Indianapolis, Ind.	E. J. Hodgson, Indianapolis, Ind.
J. H. Stem, " "	James G. Cutler, Rochester, N. Y.
John Ord, Philadelphia, Pa.	

ASSOCIATES.

P. L. Le Brun, New York, N. Y.	J. McDonnell, Green Bay, Wis.
Leoni W. Robinson, New Haven, Ct.	F. W. Humble, Buffalo, N. Y.
H. W. Kirchner, St. Louis, Mo.	Eugene H. Taylor, Des Moines, Iowa.
B. H. Enos, Indianapolis, Ind.	R. W. Gambier-Bousfield, Montreal,
C. G. Mueller, " "	Canada.
W. S. Wicks, Auburn, N. Y.	David L. Stine, Detroit, Mich.
E. R. Willson, Providence, R. I.	J. J. Deery, Philadelphia, Pa.
F. W. Vogdes, Indianapolis, Ind.	Fred. B. White, New York, N. Y.

One Fellow — Mr. Henry Fernbach, of New York, N. Y. — has died during the year, and two Associates have been dropped from the roll, leaving the net gain in professional membership, since the last Convention, seventeen.

The Report of the Treasurer shows that the finances of the Institute have been carefully managed and are in a good condition.

The papers read before the Convention were as follows: "An Architectural Résumé," by Henry M. Congdon, F. A. I. A.; "Old Art in Europe, a Help and a Hindrance to New," by Russell Sturgis, F. A. I. A.; "Metrology," by Rev. H. G. Wood, Sharon, Pa.; "Chemical Preservation of Building Materials," by R. Ogden Doremus, M. D., New York. These papers were listened to with interest and referred to the Committee on Publications.

The Nominating Committee presented the following list of officers for the year 1885, who, after balloting, were declared to be unanimously elected: —

President, Thomas U. Walter, L.L. D., Philadelphia, Pa.
Treasurer, O. P. Hatfield, New York, N. Y.
Secretary, Geo. C. Mason, Jr., Newport, R. I.
Trustees: Messrs. H. M. Congdon, New York, N. Y.; A. J. Bloor, New York, N. Y.; Napoleon Le Brun, New York, N. Y.; E. T. Littell, New York, N. Y.
Secretary for Foreign Correspondence: W. L. B. Jenney, Chicago, Ill.

Committee on Publications: Messrs. H. Hudson Holly, New York, N. Y.; T. M. Clark, Boston, Mass.; Chas. Crapsey, Cincinnati, O.; J. McArthur, Jr., Philadelphia, Pa.

Committee on Education: Alfred Stone, Providence, R. I.; Henry Van Brunt, Boston, Mass.; Prof. N. Clifford Ricker, Champaign, Ill.; Prof. W. R. Ware, New York, N. Y.; Prof. T. M. Clark, Boston, Mass.

Upon announcement of the result of the ballot, President Walter, in a few graceful sentences, thanked the Convention for the honor which had been again conferred upon him, and expressed his desire to forward, by all the means in his power, the interests of the Institute and the profession of architecture.

The most important business brought before the Convention was the report on a revision of the Schedule of Professional Practice and Charges, prepared by a sub-committee of the Board of Trustees.

The discussion of this report occupied nearly the whole of the morning session of the 23d, and resulted in the re-adoption of the present Schedule, with several changes and amendments. The Schedule as amended will shortly be printed and distributed to members of the Institute.

The annual dinner, courteously tendered to the members of the Convention by the architects of Albany, was given at the Delavan House on the evening of the 23d. About forty-five architects, with other gentlemen interested in art, literature and the professions were present. Mayor A. Bleecker Banks presided, and among the guests may be enumerated Rev. Dean Norton, of All Saint's Cathedral, Rev. Dr. Battershall, of St. Peter's Church, and Mr. St. Clair McKelway, editor of the Albany *Argus*. Speeches followed the dinner, nearly every one present being called upon and answering in a pleasant and felicitous manner.

Among the good results of the convention will probably be the rehabilitation of the Albany Chapter.

A most courteous and hospitably worded invitation was received from the Art Club of Nashville, Tenn., requesting the Institute to hold its nineteenth convention in that city. The matter was referred to the Board of Trustees, the members present generally expressing the opinion that if possible it would be desirable to hold the next convention in a southern city.

The afternoons of the days of the convention were devoted, under the guidance of their hosts, the Albany architects, to visiting the Capitol, City-hall, foundations of All Saint's Cathedral, the Van Rensselaer manor house, the Schuyler mansion, the Van Rensselaer house at Greenwich, and the new draw-bridge across the Hudson. At the Capitol the members of the Convention were presented individually to Governor Cleveland, were shown through the building and viewed the extensive works in progress, under the guidance of Mr. Isaac Perry, the superintending architect.

The freedom of the Fort Orange Club-house was extended to the visitors.

Before adjournment a vote of thanks was tendered to the Albany architects.

The third day of the convention was devoted by many of the architects to excursions to points of interest in Albany and its vicinity.

This gives only a brief and summarized outline of the proceedings of the Eighteenth Convention, and is prepared in haste. Full accounts, accompanied by the papers and reports, will appear in the published "*Proceedings*" of the Institute.

Very respectfully, George C. Mason, Jr.,
Secretary, A. I. A.

THE ILLUSTRATIONS.

ABBEY CHURCH OF ST. OUEN, AT ROUEN.[1]

THE beauty of the Church of St. Ouen, has been a frequent theme of admiration among the lovers of ancient ecclesiastical architecture. The excellencies of the building have been denied by none, while some have gone so far as to consider it as the very perfection of that style, which has generally, however improperly, obtained the name of Gothic.

A recent English traveller, whose attention was expressly directed to the different departments of the arts, bears the following testimony in its favor: "Beyond all comparison, the finest specimen of Gothic architecture which we have met with in France is Saint Ouen, the secondary church at Rouen. Contrasted with Salisbury Cathedral, it is small; but it does not, I think, yield to that or any other structure I have ever seen, in elegance, lightness, or graceful uniformity." Previous to the suppression of monasteries in France, the Church of St. Ouen made part of the abbey of the same name, one of the most celebrated and most ancient in Normandy. It is now a parochial church, and is happily in nearly a perfect state, having suffered comparatively but little from the mad folly of the Calvinists of the sixteenth century, or the democrats of the eighteenth; though every studied insult was offered to it by the former, and in the fury of the revolution it was despoiled and desecrated — degraded at one

[1] From Cotman's "*Antiquities of Normandy*."

No. 465 American Architect and Building News, Nov. 22 1884

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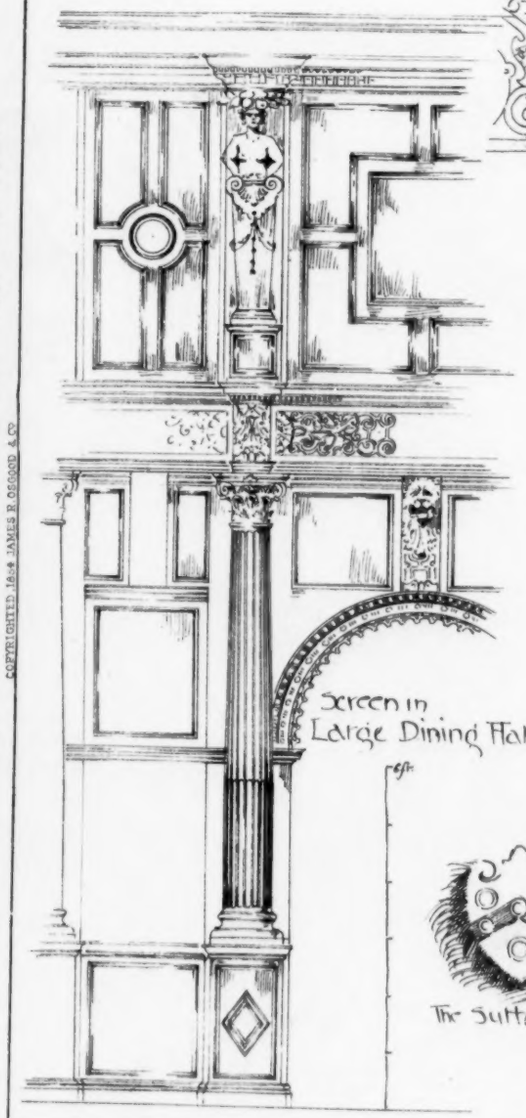
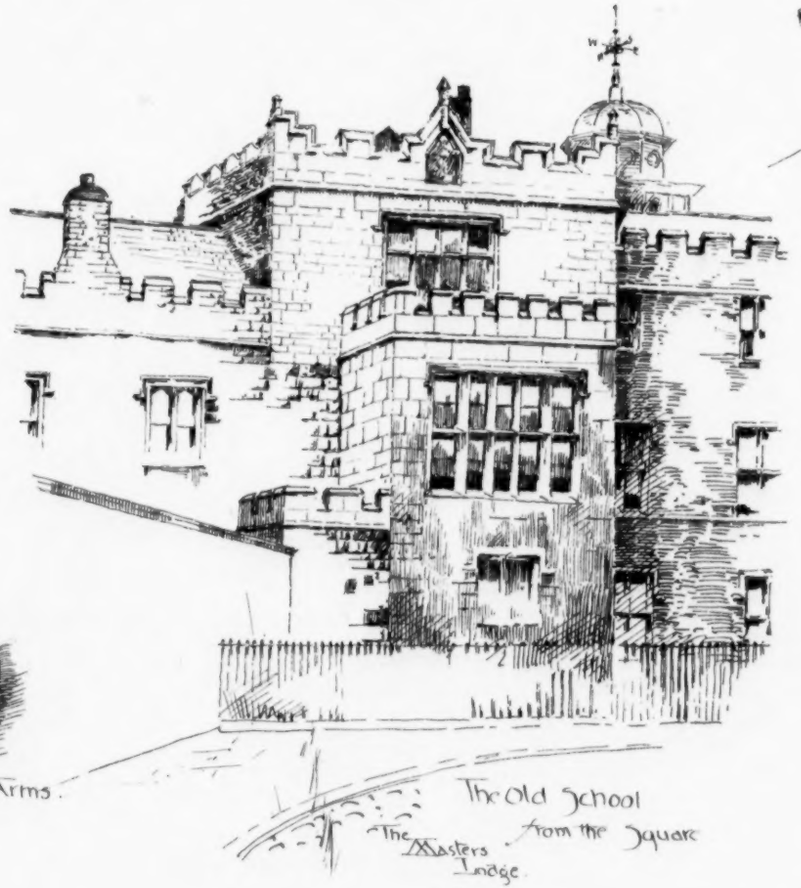


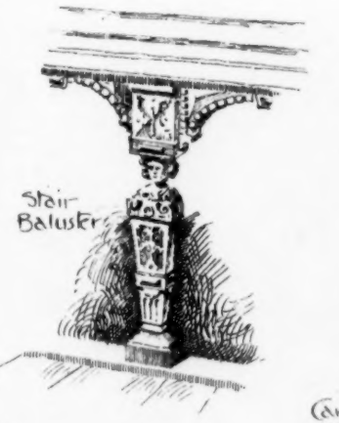
Screen in Large Dining Hall.

Panel in Soffit of Hall window.

The Sutton Arms.



The Old School
The Masters Lodge
from the Square

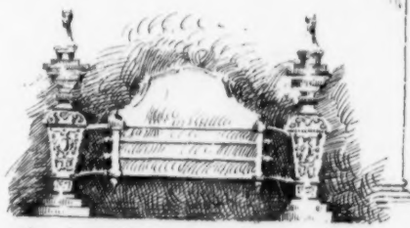


Stair Baluster

Carved Pilaster

From the
CHARTER HOUSE.
London

Measured and Sketched by
C.H. Blackall



Andirons in Queen Elizabeth's Room.

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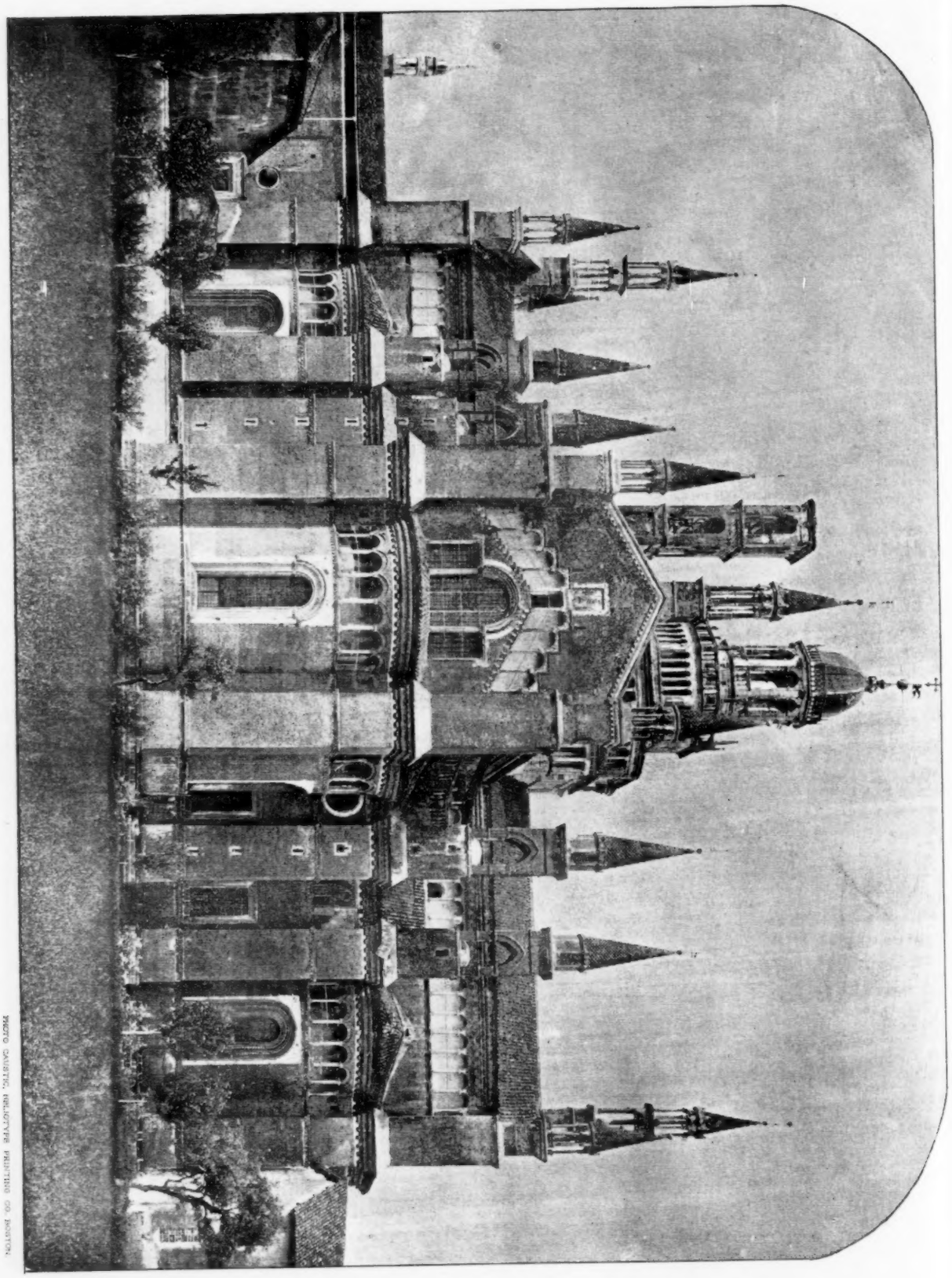

THE CERTOSA, PAVIA, ITALY.

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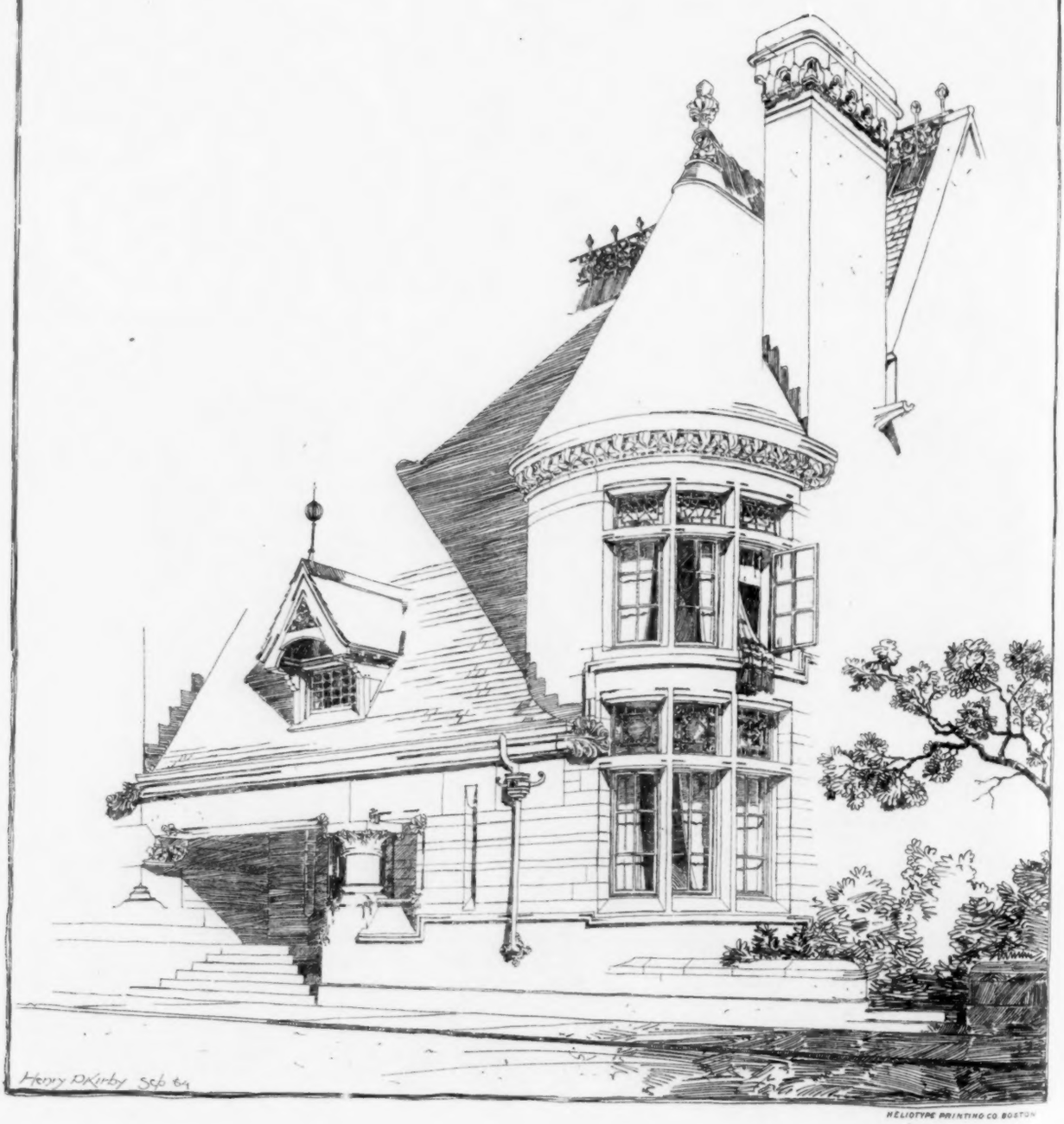
Studies for a House at Pittsburgh Pa.

Sketch of the Entrance.



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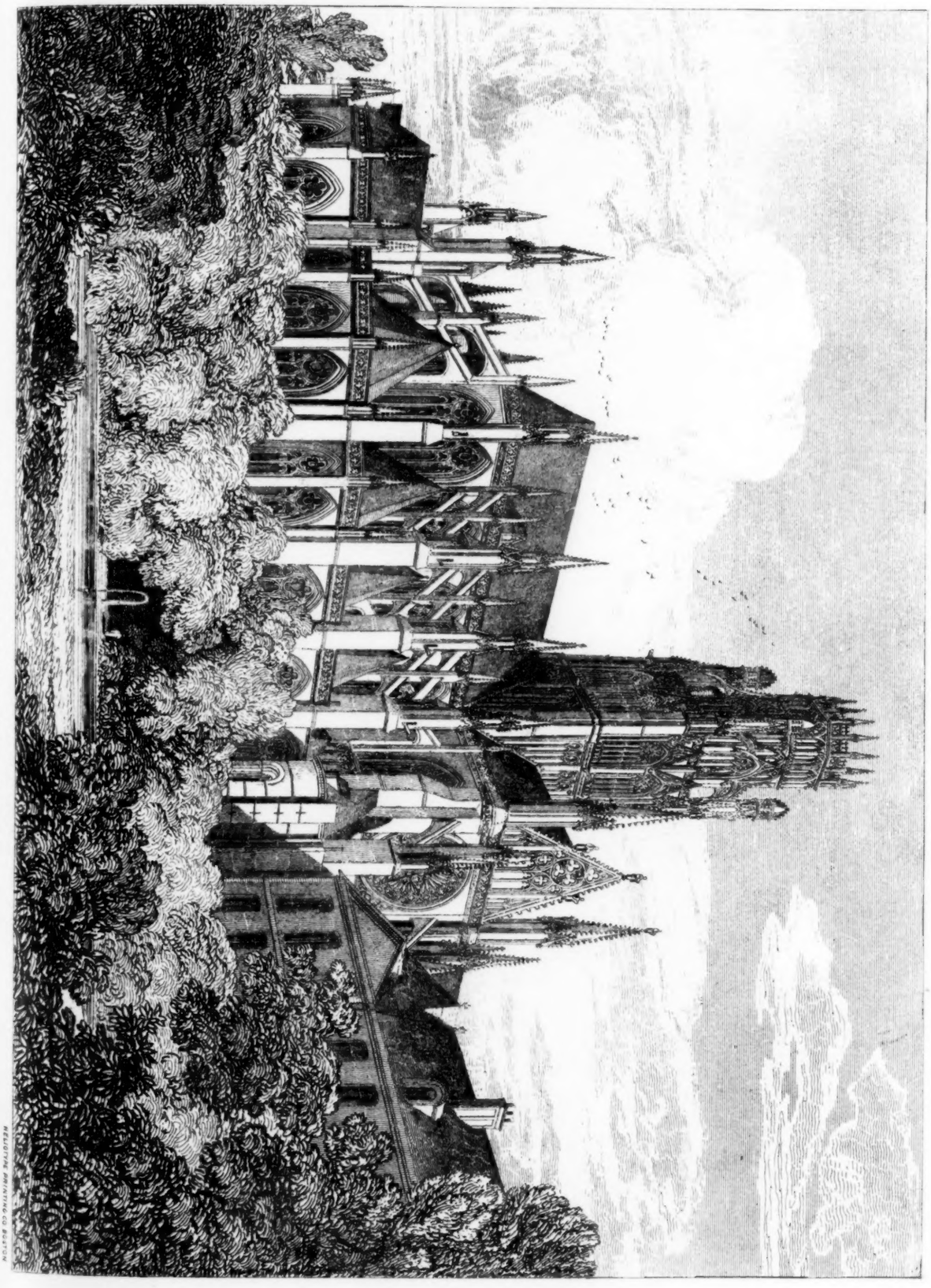

ABBEY CHURCH OF ST OUEN, AT ROUEN.

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CHURCH OF ST. NICHOLAS, GHENT, BELGIUM.

AMERICAN ARCHITECT AND BUILDING NEWS, NOV. 22 1884 No. 465

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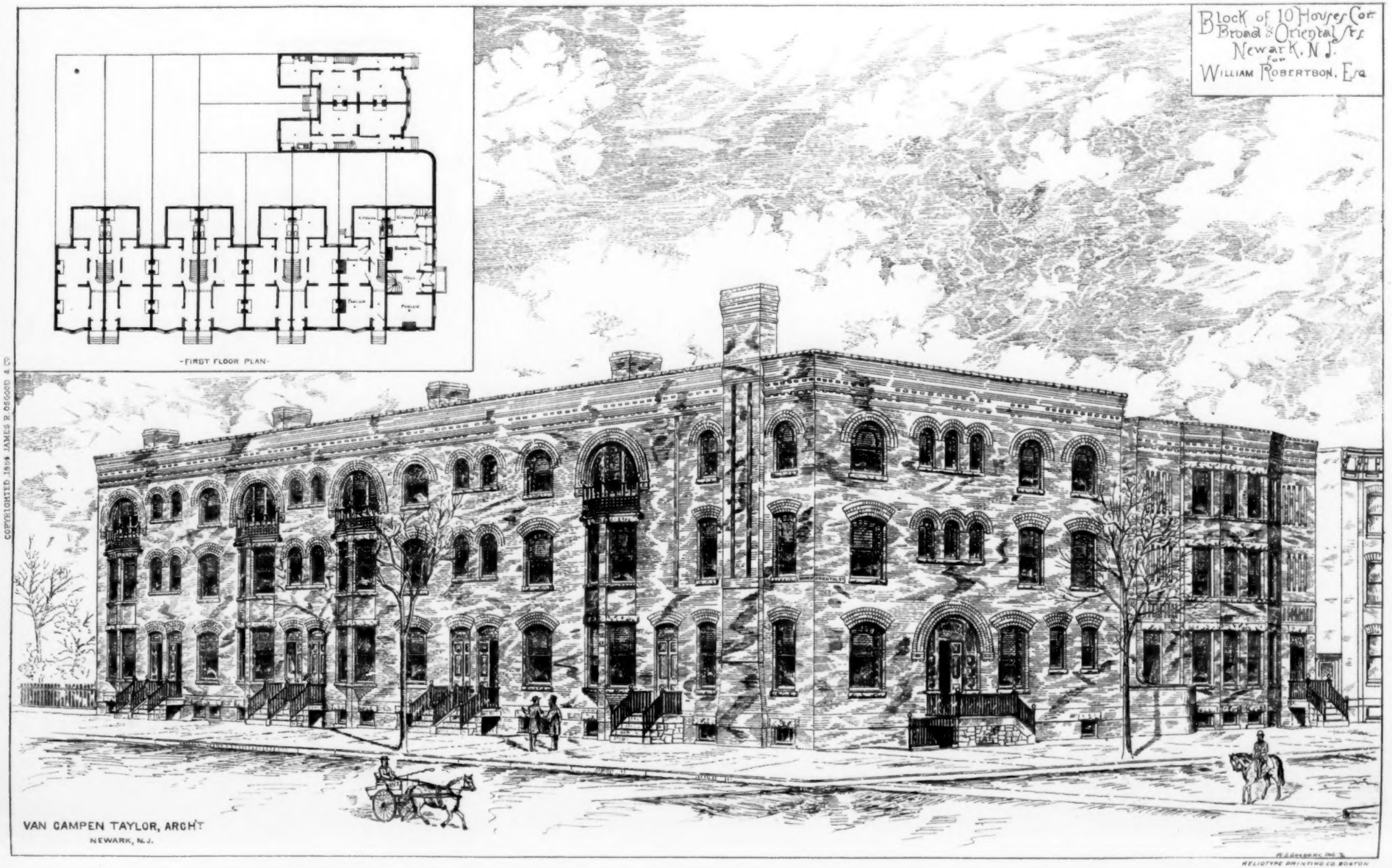

-FIRST FLOOR PLAN-
Block of 10 Houses Cor. Broad & Oriental Sts. Newark, N. J. for William Robertson, Esq.
VAN CAMPEN TAYLOR, ARCH'T
NEWARK, N.J.

HELIOTYPE PRINTING CO. BOSTON

time to a manufactory for the forging of arms, and at another to a magazine for forage. Different accounts are given of the foundation of the convent; some writers contend for its having taken place as early as the last year of the fourth century, and having been the work of the piety of Saint Victrice, the Bishop of Rouen; others, and these the greater number, are content with tracing it from the reign of Clothair. Those who adopt the latter opinion are again divided, as to whether the prince himself was the actual founder, or only ratified by his royal sanction what was really the establishment of Archbishop Flavius. In either case, however, they agree in dating the origin of the abbey from the year 535.

Upon the irruption of the Normans in the ninth century, this abbey shared the common fate of the Neustrian convents; and, like the rest, it rose from its ashes with greater magnificence, after the conversion of these barbarians to Christianity. Nicholas, the fourth abbot of the convent, son of Duke Richard II, and of Judith of Brittany, is said by Ordericus Vitalis to have commenced "a new church of wonderful size and elegance." But though he presided over the fraternity nearly sixty years, he did not live to see the building finished; the bringing of the task to perfection was reserved for William Balot, the next but one to him in the succession; and even he died in the very year of the dedication, which did not take place till 1126.

This church which had cost eighty years to build, was suffered to exist but a short time after its completion; only ten years had elapsed from its dedication, when it fell a prey to a conflagration, which was at the same time destructive to the greater part of the city; another church built shortly after, and chiefly by the munificence of Richard Cœur-de-Lion, shared the same fate in 1248. But even these repeated disasters in no wise abated the spirit of the monks; they had retired with the wreck of their property to one of their estates near Rouen, and there, by economy on their own part, and liberality on that of others, they soon found themselves in a state to undertake the erection of a fourth convent, of greater extent than any of the former, and to inclose it with high walls. The honor of laying the first stone of the new church, the same that is now standing, is attributed to one of the most celebrated of the abbots, John Roussel, more commonly known by the name of Marcdargent. He had been elected to the prelacy in 1303; and fifteen years afterwards, he commenced the structure. He presided over the monastery thirty-seven years, and was buried in the Lady-Chapel of the church, which he had completed as far westward as the transepts. The remaining parts of the church were not finished till the beginning of the sixteenth century, when it was brought to its present state by the thirty-fourth abbot, Anthony Bohier, who, in the annals of the convent, bears the character of having been "a magnificent restorer and repairer of ancient monasteries."

Admirable as is the structure, the original design of the architect was never completed. The western front remains imperfect; and this is more to be regretted, as that part is naturally the first that meets the eye of the stranger, who thus receives an unfavorable impression, which is afterwards difficult wholly to banish. The intention was, that the portal should have been flanked by magnificent towers, ending in a combination of open arches and tracery, corresponding with the outline and fashion of the central tower. An engraving of this intended front, is given in Pommeraye's "*History of the Abbey*," from a sketch preserved among the records of the convent.

The view of this church etched by Mr. Cotman, is copied from a drawing made by Miss Elizabeth Turner. It represents the building, as seen from a seat in the gardens formerly belonging to the monastery, but now open to the public; and it is well calculated to convey a general idea of the character of the exterior of the building, including the central tower, which is wholly composed of open arches and tracery, and terminates like the south tower of the cathedral, with an octangular crown of fleur-de-lis. The plate also exhibits a portion of a circular chapel, now commonly known by the name of *la Chambre des Clercs*, the only remaining part of the church built by William Balot, in the beginning of the twelfth century. This chapel, the south porch, the central tower, and a specimen of ancient sculpture in the church, have been engraved by Mr. Turner in his "*Tour in Normandy*." The two first, of the same subjects, together with the western front, a general view of the church from the south, the curious bas-relief over the southern entrance, and a representation of the interior, have since been lithographized in M. Jolimont's "*Mounmens de la Normandie*." Considerable pains have been devoted in both these works to the description and the history of the building; and to them the reader must be referred, who is unwilling to engage with the ponderous folio of Pommeraye.

THE CHARTER-HOUSE, LONDON. SKETCHES BY MR. C. H. BLACKALL.

THE group of buildings now known as the Charter-House is situated in what was the old city of London, opposite the great Smithfield Markets, and but a short distance from the still existing St. John's Gate, a portion of the old city walls. The name has been corrupted from Chatreuse, a Carthusian monastery having been founded here in 1371, on the site of a burying-ground for persons dying of the plague. In 1535, Henry VIII dissolved the monastery, and shortly after, the property passed into the hands of Thomas Howard, Duke of Norfolk. Most of the existing buildings date from this period, and the old work was greatly enriched, and put in thorough repair by the Duke, who made this his family seat. Here Queen Elizabeth was entertained during five days, awaiting preparations for her coronation, and during a subsequent visit she is said to have become greatly incensed with her host, who loved his sovereign too little, or perhaps too much, and who was locked up in his own house for his coldness. James I also kept court in the Charter-House on first entering London. Subsequently, the establishment was much neglected, and was little used until 1611, when all that was left of the former buildings was purchased by Thomas Sutton, a retired merchant, who had made a great deal of money out of Government contracts. He put everything in very thorough repair, making a number of additions and changes, and converting it into a school for forty boys, and an asylum for eighty indigent and deserving gentlemen. Sutton left everything very thoroughly organized and richly endowed, and the Charter-House in many of its appointments has not changed materially since his day. Grace is still said at table in the same words used by the retired merchant, who thought so much of his formula, that he had it ordained that none other should be used. In 1872, the boys school was transferred to new and more sanitary quarters at Godalming, Surrey. The "Merchant Taylors Company" has lately acquired a portion of the old monastery close, and erected a large brick school-house, which however has nothing to do with the Charter-House. The "poor Brethren" still come and go as they did two centuries ago. They are very comfortably housed in apartments facing the interior courts. The school has always been crowded and has had among its former pupils, Barrow, Steele, Addison, Blackstone, Wesley, Grote, Havelock, and Thackeray. In "*The Newcomes*," Thackeray presents some very pleasing pictures of life in the old Charter-House School.

Of the old monastery buildings, nothing now remains but the pointed entrance gateway, and portions of the interior walls, though the kitchens appear to have been erected before the time of the Duke of Norfolk. The large dining-hall is considered the most perfect specimen of an Elizabethan room in London. The ceiling is of a Gothic feeling, however, and has the appearance of having belonged to the olden monastic refectory. One end of the room is crossed by a high oaken screen, very rich in carving and Elizabethan strap-work, the columns being very nicely proportioned. The Duke of Norfolk's monogram is cut on the frieze of this screen, with the date 1571. The room has a high wainscot all around and a narrow gallery along one side, connected with a musician's gallery over the screen above referred to. The old fireplace was built by Thomas Sutton, and is adorned with the Sutton arms, and various emblems of the manner in which the old merchant came by his wealth. In the same wing with the dining-hall is the old chapel containing some excellent wood-work, and a very handsome staircase-hall, very well preserved, and exceedingly rich in detail. Portions of the Suttons arms are found on the newel-posts. This staircase-hall has also quite a handsome ceiling of Elizabethan strap-work, and a wide mullioned window, with rich-carved pilasters on either side, and an elaborate soffit. The Queen Elizabeth room is in this same portion of the Charter-House, and is a very perfect example of the interior work of the period, with a huge mantel reaching to the ceiling. Some of the old furniture still exists, and the ceiling of moulded plaster strap-work, is in a very good state of preservation. The appearance of this room is not unlike that of the large chambers in Haddon Hall.

C. H. B.

THE CERTOSA, PAVIA, ITALY.

THE Carthusian Monastery is one of the most celebrated buildings in northern Italy. The famous façade of Ambrogio Borgognone, was begun in 1473, nearly a century after the foundation of the monastery. The view published to-day shows a much less familiar aspect of the structure.

THE CHURCH OF ST. NICHOLAS, GHENT, BELGIUM.

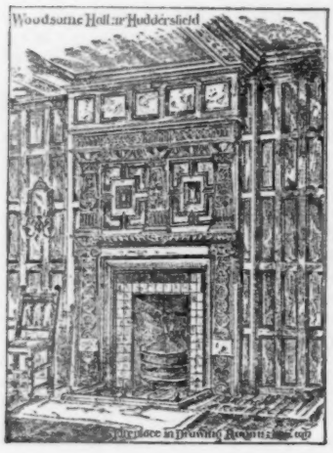
IT is of this church, the oldest in the city, that the following punning description is commonly given: *L'eglise a onze tours et dix sans* (pronounced *cent*) *cloches*. [The church has eleven towers, and ten hundred bells — literally, "ten without bells."] The greater part of this building dates from early in the fifteenth century.

STUDY FOR A HOUSE AT PITTSBURGH, PA., — SKETCH OF THE ENTRANCE. MR. H. P. KIRBY, ARCHITECT, PITTSBURGH, PA.

BLOCK OF TEN HOUSES FOR WM. ROBERTSON, ESQ., NEWARK, N. J. MR. VAN CAMPEN TAYLOR, ARCHITECT, NEWARK, N. J.

THE VALUE OF THE COEFFICIENT OF EXPANSION.— An illustration of the way in which a coefficient like 0.000006, that of the expansion of steel, may become a big thing with a few degrees of rise of temperature and long lengths has been seen, says the *Engineer*, on the new Midland line between Irchester and Sharnbrook, recently opened for goods traffic. The rails were laid during winter time, and insufficient room was left for expansion, consequently the summer heat expanded the rails to such an extent that the road burst out of line. Traffic had to be at once stopped and the permanent way altered and properly spaced. Accidents from the "spreading" of rails are far more frequent than is supposed on roads in this country. Your compiler long ago showed the vital necessity of regulating the space allowed for expansion at the ends of rails by constant reference to the height of the thermometer on the spot and during the whole process of laying the rails.

THE ASSOCIATION OF WESTERN ARCHITECTS AND THE AMERICAN INSTITUTE OF ARCHITECTS.



AT the banquet which was a feature of the recent convention of western architects, Mr. W. L. B. Jenney, F. A. I. A., responded as follows to the toast, "The American Institute of Architects": —

Gentlemen, — Please allow me to thank you in the name of the Institute for your kind remembrance and to extend to you her motherly love. Some thirty-six years ago the Institute commenced its existence as an incorporated body under auspices not as favorable as those that here obtain. The Institute was alone in her struggle for existence; we have to guide us her thirty-six years of experience and her assistance, besides that of numerous State and other local organizations. The Institute has endeavored to unite in fellowship the architects of this continent and to combine their efforts so as to promote the artistic, scientific and practical efficiency of the profession. What the Institute proposed to do for the continent, we propose to do for the West. The Institute two years ago had a membership consisting of some sixty-two honorary members, among them such well-known names as Sir Charles Barry, Wm. Burges, C. R. Cockerell, James Fergusson, George Godwin, Sir George Gilbert Scott, Viollet-le-Duc, and others; sixty-four corresponding members, men interested in architecture, but not practising architects; three hundred and sixty-two Fellows and Associates, architects in good standing located in all parts of the country. Numerous additions have recently been made, of which I have no record.

The annual meeting of the Institute is usually held in the East, because the attending members are largely from that locality. Each year endeavors have been made to interest the Western members, and to induce their attendance at the next annual meeting, but with little success. To further this end two years ago the meeting was held in Cincinnati, but there was only one member present from west of that city. A year ago the meeting was held in Newport and Providence, at the fashionable season; there was but one attendance from Chicago, and none from beyond, westward. A few days ago the meeting was held in Albany, at which there was no attendance from the west beyond Cincinnati and Cleveland. These meetings are all exceedingly profitable and interesting. The visiting architects are the guests of the local chapters, who entertain royally, assisted by many liberal-minded and wealthy gentlemen, who open their houses, show many beautiful interiors and works of art, and spread out a lunch-table with big bowls of capital punch and plenty of champagne and cigars. In spite of all these pleasures and profits, the attendance is not large. This year, at Albany, the visiting architects numbered but twenty-two, and one sees year after year nearly the same faces. Why this small attendance, and why confined to the same persons with but little variation?

The immense extent of our country, and the difficulty of being absent from one's office for a number of days, just at the time the meetings are held, is one, but this is not the main reason. It is because those members who are not in the habit of attending, feel that they are not acquainted, and that they would not feel at home. This is a great mistake. Every person who has once attended a meeting of the Institute will do all in his power to attend every one thereafter. At a single visit he feels that he is received with such good fellowship that he counts every member his friend. This good fellowship among members is one of the greatest advantages to be derived from these associations; and it is with great pleasure and with encouraging hopes of a brilliant future that we see so many present at our first meeting, and our first duty is to make friends with each other.

The Institute has acquired an honorable name throughout the world, and it is to-day an honor to be enrolled among her fellows. I hope that our Board of Directors will sooner or later arrange with the Trustees of the Institute some method by which all members of this Association will become *ipso facto* members of the Institute, conferring as many benefits as they obtain. There is strength in numbers, and it is a good reputation to be known to frequent good company. This Association united with the Institute, will include nearly every architect of good standing in the land, and some of the more celebrated of Europe. We cannot be ignored. We will establish the profession on as firm a base and on as high a pinnacle as that of the law or medicine, and secure for its members the same high respectability that is so freely accorded them in Europe.

Fellows of the Association of Western Architects: The Institute extends to you all the right hand, and wishes you a success more brilliant than the most enthusiastic among you even dare to hope.

UNITARIAN CHURCH BUILDING.[1]

FROM AN ARCHITECT'S POINT OF VIEW.

ONCE, however, having chosen your site and your architect, the arrangement of the church next becomes important. Regarding this I would say that, looked at from æsthetic grounds alone, — as a matter of composition, of feeling, and of design, and aside entirely from such advantages as a minister would urge, — it seems to me that the church should be a church from bottom to top, sacred to devotion from foundation to spire. A Roman Catholic church is dedicated whenever it is ready for services, and it is used just as any room could be used for the mass and other ceremonies; but when it is wholly paid for, it is *consecrated*, and the altar, previously movable and temporary, is then put on a masonry foundation to stand for all time in a *church*. Now, I think that our churches should have, not temporary and removable altars which give place to the stage and the stove, but that they should be holy all the time, — in other words, *churches* right down to the ground; and I believe that the social meetings, the sewing-circles, the parish-parties, should be held in an adjoining structure. It is sometimes cheaper to have these in the basement, but it does not save so very much. On the other hand, the grouping of church and parish building will be attractive outside, and the sentiment of keeping the church sacred to the worship of God certainly is worth something.

The same ideas apply to the ground plan of the audience-room. If the church is really but an audience-room, theatres and concert-halls are our best models. These have grown up out of the necessities of seeing and hearing as the prime and only needs. This is a perfectly legitimate way of looking at the question of building Unitarian churches; and, moreover, grand effects can be thus obtained. I remember noticing this, especially in a large but cheap galvanized-iron church in New York, where the seats are amphitheatral and raised one above another, as in a Greek theatre. As an audience-room, it is well arranged for all to see and hear; as a lecture-room, it brings every one directly before the speaker; as a concert-room, the effect must be grand when the people join in the hymn. But it is not a church. What is there about it to distinguish it from any of the places I name, or to mark it as the house of God? If the preaching is everything, if we go to church for the sermon only, if association of ideas is nothing, if kinship with the worshippers of all the Christian centuries is nothing, if worship on our part is nothing, this is our best plan for a church. But in my experience, not as an architect, but as a man, our churches have, I will not say too much sermon, but certainly too little devotion. There are very many who are unable to master doctrines of atonement and redemption, and who feel that, when trained men differ so vastly about dogma, their own lack of training and knowledge makes them no judges of it. And yet many of these still believe in a God to whom it does them good, in company with their fellows, to confide their hopes, and sorrows, and joys, and fears, and faith, and in a Christ whose life and example are the best guide they have for right living. These go to church for devotion as well as for the sermon. It is this desire for a religious and devotional atmosphere that in my experience has taken young Unitarian-bred parents to other communions where the spirit of devotion is more conspicuous, so that, even if their own convictions are not secure, their children may grow up with that respect for holy places and holy things which is less strong now than when we were children.

All this is not architecture; but it explains why I would, in the plan of a new church, hold fast to all possible accepted forms and associations, and not be set aside by the too practical committee-man, who wishes every seat as good as the others, at any cost of association, dignity, or beauty. Far from agreeing with him, I think much should be sacrificed to gain brave responses, devout prayer, hearty singing. It is not a brilliant discovery of ours that mediæval churches do not wholly suit a congregational service. The mediæval builders must have known this perfectly well; but they valued other things also; they saw what was gained by effects of distance, perspective, mystery. When they worshipped they worshipped the Lord "in the beauty of holiness." These things meant something to them, and these same things lead us now to make reverent pilgrimages to all the cathedrals of England and the Continent. The cathedrals, the abbeys, the village churches of the Middle Ages would never have been what they are, would never have had their atmosphere of religion and devotion, if they had not been to their builders sacred places, retreats from the world without, and distinct and different from their

[1] Portions of a paper, by Robert S. Peabody, in the *Christian Register*.

habitual surroundings. And for us, too, if what we want is a lecture-room, it seems idle to be discussing *church* building. If we want churches, we must build *churches;* and the experience of eighteen centuries of church-builders is not to be idly dropped.

I have dwelt thus on the value of religious sentiment because it is so easily endangered, and it is pleasing to note that most of the recent important churches of our denomination do aim at this church-like-air, but it is plain that there are other essentials of which we must not lose sight. If cleanliness is next to Godliness, fresh air is likewise a powerful aid to piety. At one of the Moody and Sankey revival meetings in Boston, some inquiring engineers tried experiments on the fresh-air ducts. On closing them slightly, the meeting became torpid, the preacher dull, the audience sleepy. As less air was admitted, people began to leave the meeting, and at a given point a woman would faint. As soon as fresh air was admitted, all cheered up; with more air still, the speakers took courage, the hymns were stronger, and as the outer air poured in freely, we can readily believe that backsliders awoke to their sins, and conversions began. Of course, then, we must have fresh air. Of course, we must see and hear well, must have good seating, and warmth, and light, and with all this the ground plan of the church becomes important. There are ancient examples that might respond to most of these requirements. It has been well said of mediæval plans that "the typical Gothic church plan is an avenue; the typical Byzantine church plan is a central area. The one is arranged along an axis; the other is grouped around a point." These central-area plans are excellent examples for us. The church of St. Mark at Venice, for instance, is not far from possessing a good plan for a Congregational church; and there is not a spot on earth that bears more distinctly the mark of being holy ground. We cannot of course have the long, narrow-naved plans generally used in England, the "avenue plans" above referred to; nor are columns that intercept the view desirable, and light iron columns that seem too light for their work are worse than none. But a wide-naved church with wide transepts makes a fine audience-room and gives the "central area;" and galleries in the transepts, if desired, bring the audience very near the speaker, while a row of columns on the inside of the outside aisles may narrow the span, and add to the effect. Of our churches, All Souls in New York, the First Church in Boston, the Church of the Messiah in St. Louis, the church in Springfield, and many others, have more or less this type of ground plan, — a type that thus seems roughly accepted as the best to follow.

The really unsettled point in these plans is the position of the choir. In two of them it is beside the pulpit, in one behind it, and in the fourth in a side gallery. In short, there is no agreement as to the right spot. The minister must hold the eyes of his audience, but it is not elevating for the audience to watch four singers in the act. It is difficult not to observe that the soprano is attractive, or we constantly recall the appearance of the bass in "Pinafore." Neither congregational singing in a Congregational church, nor the singing of men and boys placed in the chancel of a ritualistic church seems out of place; but, for the half-way measure of a quartette or chorus, the best position is where the music can be given without the singers themselves attracting the attention of the audience, and this is, probably, over the entrance door.

After considering both the arrangement and the ground plan of the church, there remains, as to matters of design, only the style of its detail to consider. In a small church this may often be reduced to a minimum. Built of shingles or of cobble stones, its mass, and shape, and group will be better let alone than aided by detail. But a large building requires some detail, and some historical character must be given this detail. No single historical style is essential to the religious spirit. Examples of the most varied kinds can be cited, both ancient and modern, that have all the expression of religion, and yet are Latin basilicas, Byzantine churches, Mediæval and Renaissance cathedrals. Who can say that either St. Paul's in Rome, or St. Mark in Venice, Notre Dame or the Pantheon in Paris, Westminster, or Wren's buildings in London are not Christian churches? Yet how wide the difference in their styles! Details have to be used as words, expressions, and phrases are in writing; and they have the same history. Wren built St. Paul's in London, in the same Roman vein in which Milton wrote of Paradise, Chambers and Adam designed their elegant work as Addison wrote his essays. Our work is sure to be national; the needs and purposes of our buildings will make it so; but this language of detail will show its origin, and *should* be scholarly and harmonious, as much so as the phrases of the speaker in the pulpit. It can be American, as is the language of Whittier, of Bryant, of Lowell. This scholarship does not come to a designer by chance, any more than poetry finds fit expression through an illiterate man. You need for your architect a scholar, and a man of refinement, as you do for your minister. In such hands, the style employed has little to do with the character of the church, but the feeling and ability of the designer are everything. And when he has kept your church plain and simple, to be relieved at a few telling points by some lavish use of this detail we are talking of, by some bit of ornament, carving, color, or glass, do not cut this off. It is probably the centre that all else works up to. Remember it was Judas who said of Mary's costly offering of spikenard, "Why was not this ointment sold for three hundred pence, and given to the poor?" And it is added, "This he said, not that he cared for the poor."

A traveller through English country villages notes nothing more than the great number, the richness, and the beauty of the small parish churches. They form the central object of each village; and with their long and low lines, their ivy-covered towers and spires, backed by dark yew trees, and surrounded by their quiet churchyards, they are the most picturesque objects one sees. Their number is very great, and their fitness unequaled. The men that built these churches were *our* ancestors; and *our* history, poetry, and associations have been so built into them and grown around them that, when an Anglo-Saxon writes, speaks, or thinks of a *church* these buildings are in his mind. Whatever the grandeur of an Italian basilica, the richness of a lofty French parish church, none of them suggests to the Anglo-Saxon, simple piety, reverence, devotion, none seem holy places, so much as does an English village church.

Naturally, then, these buildings have much to suggest to us; and beyond anything perhaps, we notice the charming adaptation to their sites, their homely and simple beauty, their low and wide-spread mass, shooting up from the plains and meadows into lofty spires or buttressing the hillsides with sturdy towers. But, apart from matters of design, what we might well learn from English churches, ancient and modern, is the solidity of construction which has brought the former down to our day, and which will preserve those building now for a remote future. All the mediæval cathedrals and village churches were of masonry inside and out, and generally this masonry showed as brickwork or stone-work inside of the church as well as outside of it. Modern churches of this character are now built all over England, and I have noticed many mission churches, for instance, in the poor East End of London, as simple as they can be in brick and mortar, but well designed, of solid masonry inside and outside, and good without the aid of plasterer or painter for indefinite time. Even with cheap mission churches, a scheme worthy of imitation is to build a small portion of the church of masonry, and have the remainder of the cheapest and most temporary character. The stone part is a constant inducement to further work in the same way, and little is sacrificed by abandoning the cheap part.

Just a very few churches exist in our country with these lasting, permanent, beautiful, stone or brick interiors. They are beyond all comparisons the most church-like buildings we possess. But in general we build a stone church, and then, under the excuse that the climate requires it, we build practically a wooden one within it, and plaster on that wood, and paint the plaster with perishable colors in patterns which go out of fashion in a few years, and then the church is renewed in some new guise. If religious faith is a thing of the present, and so changeable that churches will in a few years be out of date, these temporary structures may be well enough; but, if we have anything worth going to church about, let us build solid churches to last. It is not a question of climate: it costs a little more to finish the walls inside with masonry, — with warm-hued stone, or with red or yellow brickwork, — but it is lasting and handsome; and when once thus finished, the church is beyond the reach of any hungry decorator.

I remember a Sunday passed in a town in the west of England. The ancient church with its lofty tower crowned a hill whose flanks were guarded by a great Edwardian castle. Its chimes rang merrily in the morning, audible far up the river valley. At church time, the mayor and council met in the market-house in their robes of office, and, preceded by the clerks bearing the maces, walked to the church and sat together in the state seats, with the maces set in the pew-end. The town seemed to come in a body to the service. It was evidently the proper thing to do. The anglers who were staying in the old inn went with us; the servant that waited on us in the old Jacobean coffee-room went too; and so did the landlord. The little surpliced choir boys threw their youthful spirits into the chants that rang in the stone vaults of the tower, and the congregation took up their part of the service as if they had as much to do with it as the clergyman. The latter gave us, it is true, a sermon unworthy of the surroundings and of his university gown; but we had been — in spite of dogma, doctrine, or creed, — *to church.*

Now I do not want to be other than an American, nor other than an American Unitarian. I did not agree at all with the clergyman in his prosy sermon. But I should have been glad to have had a hand in raising such a church with such a tower, — or rather, a church which in some small American town should have the influence which that church had there on that Sunday morning — an influence that brought a whole community to a common centre, to a *church,* filled with the atmosphere of devotion, and prayer, and praise.

TO CALCULATE THE WIND-PRESSURE.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs,—Please publish how to calculate $P\,n$, when $P = 40$ lbs. as determined by Hutton's formula for wind-pressure $P\,n = P \sin a$ $1.84 \sin a - 1$, a being angle of roof. Which is the safer method of the two, this or Tredgold's recommendation of 40 lbs. per square foot of roof surface? Respectfully, M. S. STUDENT.

[THE problem is easily solved by the formula by finding the sine of a, and raising it, by the aid of a table of logarithms, to the power denoted by the exponent found by multiplying the sine of a, minus 1, by 1.84. This will give the value of n, and will represent the actual force of wind upon a roof inclined at a degrees with the horizon. Between this method of calculation and Tredgold's, which is founded on the unreasonable assumption that the wind blows downward as often as horizontally, we should choose the former; but neither is suited for practical use. The young architect who, on making his weekly visit to his first building, is suddenly seized

with a misgiving as to the strength of a hip or valley rafter which looks unexpectedly slender in the frame, needs to be able to recalculate on the spot the strains to which it may be subjected, so that he can give orders for reinforcing it, if necessary, before he leaves the ground. It is very unlikely that he would have a table of logarithms in his pocket, still less one of sines, and without these, the formula alone would be absolutely worthless to him. He might, perhaps, guess at the value of a sine, but to raise a number with five or six places of decimals to a power denoted by an exponent with five or six more, without the help of the tables, would be out of the question, and he might as well seek information on the subject from a witch-hazel wand as from his formula without the key. This is a more serious matter than may at first appear. Left to simple guessing, for want of a method of solving his doubts which he can carry about in his head instead of his pocket, the nervous architect finds himself obliged either to leave the roof as it is, perhaps at great risk, or to order the timber strengthened, perhaps unnecessarily, and always at the cost of an extra bill, and of some humiliation on his own part. The best statement we know of, which presents the conditions of wind-pressure in a form which is easily remembered, is a short table, calculated from Hutton's formula, and giving the pressure per square foot on roofs of various inclinations, from five to sixty degrees. This is to be found in the first volume of Greene's series of books on graphical statics, as well as in one or two others, which may have copied it from him. The table is too long to quote in full, but it is worth remembering that the maximum wind-pressure, normal to the roof, may be taken without much error, at as many pounds to the square foot as there are degrees in the angle which the roof makes with the horizon; the maximum pressure for calculation being thus about twenty-six and one-half pounds per square foot for a "quarter-pitch" roof, sixty pounds for a Gothic roof of sixty degrees pitch, and so on. This gives rather too high pressures for steep roofs, but it is better than allowing forty pounds vertical wind-pressure on roofs of all sections, which is now nearly obsolete; and with a smooth board and a two-foot rule a diagram can be drawn in a few minutes, which will give the strain due to wind in a given timber with about as much accuracy as so uncertain a subject will allow of. Eds. American Architect.]

THE COMPOSITION OF HEMACITE.

Macon, Pa., November 5, 1884.

To the Editors of the American Architect: —

Dear Sirs, — What is the composition of hemacite? An answer, through your journal or otherwise, will oblige,

Yours truly, P. E. Dennis, Jr.

[The hemacite manufacturers naturally keep the composition of their product to themselves; but we have an idea gathered from the fact of its use for other purposes, that dried blood from the slaughter-houses, pressed in moulds, forms at least a part of it. — Eds. American Architect.]

PAINTING MARBLE.

Baltimore, November 7, 1884.

To the Editors of the American Architect: —

Dear Sirs, — Can you tell us what is the preparation of paint now frequently used with successful results upon white marble mantels, etc., where it is desired to have color effect instead of the white surface? Also, if the same or any other preparation of the kind has been used and found durable upon *exterior* polished marble work.

Very truly yours, Wyatt & Sperry.

[We know of nothing better than common oil paint, which is often used for the purpose. Exterior marble-work we have never seen painted. — Eds. American Architect.]

NOTES AND CLIPPINGS.

Long-Distance Telephoning. — The most remarkable piece of telephoning yet attempted has been just accomplished by the engineers of the International Bell Telephone Company, who successfully carried out an experiment by which they were enabled to hold a conversation between St. Petersburg and Bologæ, a distance of two thousand four hundred and sixty-five miles. Blake transmitting and Bell receiving instruments were used, and conversation was kept up, notwithstanding a rather high induction. The experiments were carried on during the night, when the telegraph lines were not at work. The Russian engineers of this company are so confident of further success that they hope shortly to be able to converse with ease at a distance of four thousand six hundred and sixty-five miles; but to accomplish this astonishing feat, they must combine all the conditions favorable for the transmission of telephonic sounds. If it is found possible to hold audible conversation at such extraordinary distances, it is possible that this fact will be speedily improved upon, and we shall be enabled to converse freely between London and New York, and by and by between London and the antipodes. — *Chamber's Journal.*

The New Paris Post-Office. — A building which has been for many years in the hands of the contractors will be opened for public use almost immediately. At a cost of over 9,000,000f. Paris has built a new post-office, and placed it on the site of the old one, erected in the year 1757. In the lapse of more than a century the French capital, like our own, has stretched westward, but still the Rue Jean Jacques Rousseau remains the centre of the great city on the Seine. The new building is simply an establishment on a very large scale for the reception, the sorting and the delivery of the correspondence of the French capital. In Rome the fresco-painter and the landscape gardener were called in to assist the labors of the architect, and the new post-office in the Via Convertiti is one of the most picturesque of modern buildings. In Paris business requirements alone were considered. Two improvements have, however, been adopted which might well be imitated on this side of the channel. A large room is set apart for the use of persons who desire to write letters. It is furnished with maps, guide books, dictionaries, and directories, and has a supply of pens, ink, and blotting-paper. An attendant supplies stationery at cost price, and there is a small charge of a penny or two pence for the use of the room. In another wing of the building a passage is fitted with letter-boxes hired out at an annual rent to merchants and business men. These boxes have doors in front and doors behind. The keys of the latter are with the post-office authorities, and as soon as the mails come in letters are put into their respective boxes, while the clerks outside bring them to their masters without the delay of a general delivery. This system, now about to be introduced into the capital, has for some years been in use in large towns in France and Switzerland. It is general in the United States. — *London Daily News.*

Cures for Dry-Rot. — Manufacturers suffering from dry-rot in their warehouses and stores will do well to note the following results obtained by Prof. Sorokin of Kasan, and communicated by him to a Russian contemporary. The chief agent in effecting the dry destruction of wood is the parasite, *merulius lacrimans*, which has a special fondness for places in which textile fabrics are stored in large quantities. Prof. Sorokin, in experimenting with a view to a convenient means of removing the parasite in question, has come to the following conclusions: (1) A thorough draught will destroy the parasite within twenty-four hours. (2) If the action of draught be assisted by that of sunlight, a few hours will often suffice to put a stop to further damage. (3) A concentrated solution of common salt is very efficacious, and the stronger it is used the more rapid its action. (4) The action of a concentrated solution of cupric sulphate (blue stone, blue vitriol) is still more energetic and complete than that of common salt. (5) Crude carbolic acid is rapid in its action, and cheap but inconvenient to use. (6) The best, cheapest and most convenient material to employ is the tar obtained when birch wood is distilled for acetic acid. Its mode of application is simplicity itself, — the under surfaces of the flooring are painted with it; and it has turned out to be the best and most practical remedy against this very injurious parasite. — *Manufacturer's Gazette.*

Limousin Enamel. — The Renaissance enamels, of Limoges in general, and of Leonard Limousin in particular, must, although during many generations they suffered under a curious depreciation in price, continue to be precious and eagerly sought for, for the simple reason that "*grandes pièces*" of this wonderfully beautiful ware are exceedingly scarce, and that it was precisely in 1555 that his rare talent had reached its acme. Enamelling is one of the oldest arts in the world; but that which may be termed painter's enamel, or enamels executed on a single surface, instead of incised surfaces, is a distinct outcome of the Renaissance, and was provoked by the desire to possess imperishable reproductions, for decorative purposes, of the great works of art which had been painted in Italy by Leonardo da Vinci, by Raffaelle and their successors. The movement began in the first years of the sixteenth century. Among the first promoters of the new process was a glass painter of Limoges named Nardon Penicaud, one of whose masterpieces, executed for the poet King René of Vaudemont and Lorraine, and dated 1503, is now in the Cluny Museum at Paris. In 1532, Francis I of France, who, with all his faults, was as magnificent a patron of the arts as our Charles I was afterward, caused to be established a manufacture of enamels at Limoges, the direction of which he intrusted to Leonard, called "Le Limousin," or "Limousin." This artist, by express directions from his royal master, procured from Italy accurate copies of the best works of Raffaelle, Giulio Romano and Pinnaticcio, and he also had recourse to the great draughtsman and sculptor of the French Renaissance, Jean Cousin. The earlier works of Le Limousin had been mediæval and almost Byzantine in style; but the contemplation of the Renaissance models sent him from Italy led him to imitate the purer and more correct forms of revived Greek art. His mode of treatment was essentially his own. The general effect of his work was brilliant, light and harmonious, relieved and cheered by bright sky, blue tints, and turquois blue sparkling on a shining ground. He was especially distinguished by a bright yellow which he introduced into the hair of his personages, and by pink and limpid flesh tints, which added to the feeling of delighted surprise excited by his enamels, the effect of which has been compared to the chameleon-like brilliancy of shot satin. No one knew so well as he how to make touches of gold with which to brighten the effect of his medallions on a black ground. During his years of active life his productiveness was astonishing; but his later enamels, which come down to 1574, show the marks of an aged and failing hand. Yet, notwithstanding the multitude of dishes, vases, ewers, goblets, portraits and plaques in grissaile, cups and bowls signed by his well-known monogram of "L. L.," sometimes accompanied by a fleur-de-lis, the more important pieces of the "Limousin" soon grew rare. Many of his works have mysteriously disappeared. A large proportion of these vanished enamels were, in all probability, melted down during the stormy days of the first revolution in France, the perpetrators of the acts of vandalism being under the impression that the enamels were painted on gold or silver plate, whereas, in the great majority of instances, a substratum of copper was the material used. A very singular fate overtook no fewer than a score of enamels on which he had most assiduously labored. Francis I, being desirous of decorating the saloons of his newly erected Chtâeau de Madrid, in the Bois de Boulogne, with the most splendid specimens procurable of Limoges enamels, commissioned Limousin to paint twenty pictures of the extraordinary dimensions of five feet in length by four feet in height, illustrative of the heathen mythology. Twenty years were spent by the master enamelist of Limoges and his pupils in execution of these pictures; but Francis died in 1574, and not one of the twenty enamelled pictures was ever delivered. They remained in the possession of the heirs of Leonard de Lemousin until the outbreak of the Revolution, a period of more than two hundred years; and a French critic, writing in 1810, stated that the twenty enamels of extraordinary dimensions were purchased in 1803 by a Milor Anglais, who sent them to England. Where are they, and how many guineas apiece would they bring, were they put up at public auction? — *London Telegraph.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

307,778. FAUCET. — William A. Leggo, New York, N. Y.

307,783. PULL FOR SLIDING-DOORS.—Thomas Lincoln, Newark, N. J.

307,787. COMBINATION TRY AND BEVEL SQUARE. —Horace W. Merrill, Lynn, Mass.

307,794. PORTABLE VENTILATOR. — Theodore C. Perry, Chicago, Ill.

307,795 FLOORING-CLAMP. — Theodore A. Perry, Plymouth, N. C.

307,805. SASH-FASTENER. —Albert G. Safford, Boston, Mass.

307,830. PIPE-WRENCH. — Alfred Barbour, Tarentum, Pa.

307,848. TOOL FOR MAKING LOCK-MORTISES.—Simeon W. Drowne and Daniel K. Hubbard, Norwich, Conn.

307,852. RANGE-BOILER.—Henry P. Folsom, Brooklyn, N. Y.

307,860. DOUBLE-HAMMER BELL. —Frank O. Landgrane, San Francisco, Cal.

307,865. MACHINE FOR RABBETING, GROOVING OR MOULDING STONE. — Alexander McDonald, Cambridge, Mass.

307,889. FIRE-ESCAPE. — Daniel Wilkins, Chicago, Ill.

307,893. METALLIC LATH. — John W. Wissinger, San Francisco, Cal.

307,907. HOT-AIR FURNACE. — Nathaniel A. Boynton, New York, N. Y.

307,927. WEATHER-BOARD GUAGE. — William J. Dyer and Thos. W. Maxey, Nevada, Mo.

307,941. FIRE-ESCAPE. — George H. Herrington and Martin Heller, Wichita, Kans.

307,951. AUTOMATIC SIPHON. — James P. Hyde, New York, N. Y.

307,980. FREIGHT-ELEVATOR.— Charles B. Paxton, Vicksburg, Miss.

307,981. TROWEL. — Henry A. Peace, Brooklyn, N. Y.

307,985. SAFETY-ATTACHMENT FOR ELEVATORS.— John D. Phyfe, Demarest, and James J. Harold, Tenafly, N. J.

307,998. HYDRAULIC ELEVATOR.—Jonathan Smith, Toledo, O.

308,005. SCAFFOLD-CLAMP. — Henry Steinebrei, Brooklyn, N. Y.

308,010. ELEVATOR-ATTACHMENT. — George W. Thomas, Baltimore, Md.

308,037. CLAMP FOR SAW-HANDLES. —Andrew McNiece, Newark, N. J.

308,039. STEAM-HEATER. — John F. Pease, Syracuse, N. Y.

308,040. DRAWING-BOARD AND T-SQUARE. — Clifford H. Prescott, Lawrence, Mass.

308,041. MORTISE-LATCH. — William G. Richards, Providence, R. I.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. —Since our last report eighteen permits have been granted, the more important of which are the following: —

F. Fitzgerald, three-st'y brick building w s Fremont St., between Saratoga St. and Haming Lane.

Becker Bros., one-st'y brick building, 45′ x 180′, e s Washington St., between Chase and Biddie Sts.

Edw. M. Tracy, three-st'y brick building and two-st'y brick stable, n w cor. Aisquith and Hoffman Sts.

The Evangelical Church, brick church, n s Preston St., w of Ensor St.

Walter W. Watts, 4 three-st'y brick buildings, e s Argyle Ave., s of Cook St.

Geo. W. Donohue, 12 two-st'y brick buildings e s Wolfe St., between Monument and McElderry Sts.

S. R. Robinson, 11 two-st'y and basement brick buildings, n s Wilhelm St., w of Fulton Ave.

Chas. Mickelman, 7 two st'y brick buildings, w s Holbrook St., n of Preston St.

Boston.

BUILDING PERMITS. — *Seaver St., No.* 266, Ward 21, for Mary E. Parker, wood stable, 30′ x 42′, pitch; Wilson Bros., builders.

East Fifth St., No. 699, Ward 14, for W. G. Doe, wood stable, 43′ x 48′, flat; Thos. Rayner, builder.

Prospect St., No. 23, Ward 24, for J. J. Lucas, wood dwell., 22′ x 28′, pitch.

West First St., No. 394, Ward 14, for I. H. Graves, wood stable, 32′ x 44′, pitch; Robinson & Hatch, builders.

Unnamed St., near Boston St., Ward 20, for S. B. Pierce, 3 wood dwells., 25′ x 29′, pitch; W. J. Jobling, builder.

Tremont St., No. 1610, Ward 22, for Kate McKenna, wood dwell. and store, 24′ x 38′, flat; A. McDonald, builder.

Zeigler St., No. 45, Ward 20, for F. A. Brooks, wood mechanical building, 27′ x 40′, flat; W. Hayford, builder.

Whitney St., Ward 22, for Wm. Casey, wood dwell. and store; 25′ x 36′, pitch; E. J. Tully, builder.

Dorchester Ave., s of Greenwich Pl., Ward 24, for M. & P. Finnegan, 2 wood dwells. and stores, 25′ x 32′, flat; Jno. Bass, builder.

Rockland Ave., No. 16, Ward 21, for Mary J. Wetmore, wood dwell., 31′ 3″ x 32′, flat; C. H. Wetmore, builder.

Heath Pl., near Heath St., Ward 22, for James Byrne, wood dwell., 20′ x 28′, pitch.

Ashford St., cor. Malvern St., Ward 23, for W. J. Conneroy, wood dwell., 14′ x 16′ and 24′ x 26′, pitch; W. J. Conneroy, builder.

Danforth St., near Wyman St., Ward 23, for Hammerle, 2 wood dwells., 20′ x 35′, flat; Jos. Hammerle, builder.

Linden Ave., near Vernon St., Ward 19, for Jas. Woodward, wood dwell., 18′ x 28′, flat; C. L. Monroe, builder.

Chestnut Hill Ave., opp. Englewood Ave., Ward 25, for Wm. White, 2 wood dwells., 14′ x 14′, and 22′ x 32′, pitch.

West Chester Park, Nos. 180, 182, 184, 186, *and* 188, Ward 18, for S. Stubbs, 5 brick dwells., 19′ x 42′, mansard; Sam'l Stubbs, builder.

Rodney St., No. 81, Ward 19, for A. Blume, brick apartment-house, 36′ x 59′, flat.

Newbury St., Nos. 222-226, Ward 11, for J. W. Shapleigh, 2 brick dwells., 23′ x 57′, mansard; A. Varien, builder.

Newbury St., Nos. 295-297, Ward 11, for W. N. Coffin, 2 brick dwells., 22′ x 44′, mansard; A. Varien, builder.

Brooklyn.

BUILDING PERMITS. — *Lafayette Ave.*, n s, 225′ e Lewis Ave., two-st'y brick dwell., tin roof, wooden cornice; cost, $4,250; owner, The. Steenworth, 615 Van Buren St.; builder, John McDicken.

McDonough St., s s, 325′ w Reid Ave., four-st'y frame tenement, felt, cement and gravel roof, wooden cornice; cost, $10,000; owner, Chas. Robins, 184 Macon St.; architect, Amzi Hill.

Spencer St., e s, 325′ s Flushing Ave., three-st'y frame tenement, tin roof; cost, $3,500; owner, James F. Kirnon, 33 Spencer St.; builders, P. Sheridan and K. G. Knorr.

Baltic St., n s, 350′ e Smith St., 2 three-st'y brick tenements, tin roofs; cost, each, $5,000; owner, Mary E. Lynch, Brooklyn; architect, I. D. Reynolds; builder, John McLean.

Macon St., s s, 200′ e Tompkins Ave., 5 two-st'y brown-stone dwells., gravel roofs, wooden cornices; cost, each, $4,500; owner, Emma L. Turner, 924 Gates Ave.; builder, Albert Wilkinson.

Butler St., n s, 56′ e Court St., four-st'y brick tenement, tin roof, wooden cornice; cost, $5,750; owner, M. Toomey, Twenty-eighth St., New York; architect and carpenter, Maurice Freeman's Son; mason, John J. Gallagher.

Court St., e s, 53′ n Third Pl., four-st'y brick store and flat, tin roof, wooden cornice; cost, $9,500; owner, Wm. H. Middendorf, 427 Court St.; architect, John W. Bailey; builders, John Rolfe and Wm. C. Anderson.

Butler St., n s, 92′ e Court St., four-st'y brick tenement, tin roof, wooden cornice; cost, $5,625; owner, M. Toomey, Twenty-eighth St., New York; architect and carpenter, Maurice Freeman's Son; mason, John J. Gallagher.

Willoughby Ave., s e cor. Grand Ave., 2 four-st'y brown-stone store and flats, felt, cement and gravel roofs; cost, $9,500 and $11,000; owner, Thos. H. Robbins, Keyport, N. J.; architect, Amzi Hill; builder, E. K. Robbins.

Decatur St., s s, 205′ w Lewis Ave., two-st'y brown-stone dwell., tin roof, wooden cornice; cost, $4,500; owner, etc., E. J. Granger, 123 McDonough St.

Central Ave., No. 138, w s, 52′ n Myrtle St., three-st'y frame tenement, tin roof; cost, $4,000; owners, Leopold Michael and Wm. Bayer, Ewen St., cor. Meserole St.; architect, Th. Engelhard; builder, Wm. Bayer.

Madison St., n s, 225′ e Reid Ave., 4 two-st'y brick dwells., tin roofs, wooden cornices; cost, each, $4,000; owner, G. De Revere, 663 Greene Ave.; architect, Amzi Hill.

Herkimer St., s s, 70′ w Fellows Pl., 2 four-st'y frame tenements, tin roofs, wooden cornices; cost, each, $3,800; owner, etc., C. P. Skelton, 1895 Atlantic Ave.

Louis Pl., w s, 144′ s Herkimer St., 3 three-st'y brick tenements, tin roofs, iron cornices; cost, each, $5,500; owner, K. J. Peter, 2136 Atlantic Ave.; architect, H. Thiele; builder, Frank Metzler.

Clymer St., No. 139, n s, 160′ e Bedford Ave., two-st'y brick carriage-repository, gravel roof, brick and slate cornice; cost, $3,700; owners, Douglass & Peterkin, 165 Clymer St.; builder, T. Rasson.

Wyckoff St., No. 173, three-st'y brick tenement, tin roof; cost, $5,000; owner, John Rayney, on premises; architect, I. D. Reynolds; builder, O. Nolan.

Decatur St., s s, 100′ e Reid Ave., 3 two-and-a-half-st'y brick dwells., tin roofs; cost, each, $4,200; owner, William Siminson, 307 Reid Ave.; superintendent, John Dhuy.

Chicago.

BUILDING PERMITS. — H. Rohn, 2 three-st'y stores and dwells., 588-590 Blue Island Ave.; cost, $12,000; architect, C. O. Hansen.

Greg. Vigeant, 2 three-st'y dwells., 70-72 Bellevue Pl.; cost, $15,000; architect, G. Vigeant.

F. S. Butler, two-st'y dwell., 708 West Jackson St.; cost, $4,500; builder, Wm. Kerr.

John King, two-st'y dwell., 384 West Huron St.; cost, $5,000.

Thos. Christopher, two-st'y dwell., 3800 Emerald Ave.; cost, $4,000; architect, Van Peit.

T. Theis, two-st'y store and dwell., 173 Johnson St.; cost, $3,500; architect, P. W. Ruehl.

T. B. Little, two-and-one-half-st'y cottages, Whipple St.; cost, $3,600; builder, E. Weirson.

H. Volmer, 3 three-st'y dwells., 740-742 West Adams St.; cost, $15,000; architect, A. Smith.

D. S. Smith, three-st'y addition, 341-345 Wabash Ave.; cost, $8,000; builder, C. Busby.

D. S. Smith, two-st'y addition, rear 341-345 Wabash Ave.; cost, $3,000; builder, C. Busby.

Mrs. Smith, 2 two-st'y dwells., 3254-3258 Groveland Ave.; cost, $6,000; architect, T. C. Chandler.

J. Wallers, two-st'y dwell., 308 West Taylor St.; cost, $5,000; architects, Furst & Rudolph.

W. J. Anderson, 8 cottages, 182-200 Colorado St.; cost, $11,000; builder, W. J. Anderson.

W. Hammer & Miller, two-st'y dwell., 434 Lasalle Ave.; cost, $7,000; architect, T. Karls; builders, Muller & Scheel.

J. W. Reedy, one-st'y foundry, 126-128 Indiana St.; cost, $6,000; architect, F. Wascher.

J. E. Hochbaum, three-st'y store and dwell., 406 Division St.; cost, $8,000; architects, Fromann & Gebsen.

E. Ewert, two-st'y dwell., 3815 Dearborn St.; cost, $4,000.

S. G. R. Bishop, three-st'y store and flats, Van Buren St.; cost, $7,500; builder, A. Ely.

W. R. Ryan, two-st'y dwell., 419 West Jackson St.; cost, $3,500; architect, W. G. Williamson.

J. W. Carpenter, three-st'y store and dwell., 759-769 West Van Buren St.; cost, $25,000; architects, Burnham & Root.

A. Gattemann, two-st'y dwell., 340 North Paulina St.; cost, $2,600.

S. E. Gross, 4 cottages, Colorado Ave.; cost, $7,-200.

S. E. Gross, 8 cottages, Colorado Ave.; cost, $14,-400.

S. E. Gross, 10 cottages, Gross Terrace; cost, $18,-000.

J. Kempscheld, two-st'y dwell. and stores, 350 Webster Ave.; cost, $2,600.

Mrs. S. Webb, two-st'y dwell., 280 Leavitt St.; cost, $2,500.

J. Hervey, two-st'y dwell., 2953 Michigan Ave.; cost, $10,000; architects, Treat & Folz.

H. Piper, three-st'y dwell., 202 Burling St.; cost, $8,000; architect, T. Karls.

Mrs. U. Clark, 2 two-st'y dwells., 3817-3819 Ellis Ave.; cost, $10,000; builders, Fowler & Carr.

M. Van Nostraud, two-st'y dwell., 3516 Prairie Ave.; cost, $3,000; builder, A. McIntosh.

Benes & Nemecek, 2 three-st'y dwells., 80-82 Johnson St.; cost, $7,000; builders, Benes & Sayer.

The Board of Education, three-st'y school-house, 194-200 Johnson St.; cost, $31,000; architect, J. J. Flanders.

P. H. Ruker, two-st'y flats, 146 Curtis St.; cost, $2,500.

Wm. Weinert, two-st'y dwell., 697 Ashland Ave.; cost, $4,500.

W. R. Thompson, two-st'y dwell., 238 California Ave.; cost, $4,000.

Riverdale Distilling Co., three-st'y warehouse, 264-266 Kinzie St.; cost, $2,500.

J. Morrhaler, two-st'y dwell., 1055 North Clark St.; cost, $6,000; architect, A. Bess.

E. C. Harmon, three-st'y flats, 3243 Prairie Ave.; cost, $5,000; architect, Thomas & Rogers; builder, J. S. Price.

Philadelphia.

BUILDING PERMITS. — *Adams St.*, between Cedar and Gaul Sts., brick shed, 38′ x 260′; Hero Glass Co., owners.

Twenty-eighth St., s e cor. Highland St., three-st'y dwell., 34′ x 36′; Toureson Bros., contractors.

North Fifteenth St., between Venango St. and Erie Ave., two-st'y dwell., 16′ x 40′; Joseph Hartland, owner.

Wishart St., w s, bet. Frankford Road and Emerald St., 6 two-st'y buildings, 14′ x 49′; A. T. Richards, owner, 1512 Oliver St.

Federal St., w of Twelfth, three-st'y dwell., 17′ x 49′ 6″; J. C. Haldeman, owner.

Columbia Ave., s s, w of Broad St., three-st'y dwell. and smith-shop, 20′ x 77′; Jacob R. Garber, contractor.

Laurel St., s s, between Front and Second Sts., addition to ice-house, 18′ x 38′; Chas. C. Carmen, contractor.

Germantown Ave., between Chestnut and Sunset Aves., church, 41′ x 60′; Jacob While, contractor.

Thirteenth St., w s, between Washington and Ellsworth Sts., four-st'y stone house, 31′ x 44′; Rea & Riley, contractors.

Orkney St., n of York St., 7 two-st'y dwells., 13′ 3″ x 39′; John Sheeler, owner, 307 Thorp St.

Ella St., between Amber and Coral St., three-st'y dwell., 16′ x 30′; Robert Beatty, contractor, 413 East York St.

Marshall St., No. 2304, two-st'y dwell., 16′ x 44′; Jos. P. Gerkes, owner.

Frankford Road, No. 1754, two-st'y stable, 18′ x 30′; Jas. Macauley & Sons, contractors.

Jas. H. Windrim, architect, is preparing plans for a six-st'y building, at s w cor. of Eleventh and Market Sts., 160′ x 180′, for the Trustees of the Girard Estate.

New York.

ARMORIES.—The plans of Mr. Jas. E. Ware have been accepted for the Armory of the Twelfth Regiment by the Armory Commission, the building will have a frontage of 325′ on Sixty-second St.; 200′ on Ninth Ave.; and 175′ on Sixty-first St.; the cost will be about $300,000.

For the Eighth and Twenty-second Regiment Armories, five architects are competing on each building.

CHURCH.— For St. Lawrence Roman Catholic Church a new edifice is to be erected on the s w corner of Fourth Ave. and Eighty-fourth St.; from designs of Mr. Wm. Schickel.

COLLEGE. — The plans for the College of Physicians and Surgeons previously reported as to be erected on Tenth Ave., bet. Fifty-ninth and Sixtieth Sts., are being drawn by Mr. W. Wheeler Smith.

MARKET-HOUSE. — On the open Gansevoort St. Market, an enclosed building is to be erected for the city; from plans of Mr. Douglass Smyth.

BUILDING PERMITS.— *Third Ave.*, w s, 390′ s One Hundred and Seventieth St., one-st'y frame stable gravel roof; cost, $3,000; owner, Harlem Bridge, Morrisania & Fordham R. R. Co., Henry Spratley, president, Third Ave. and One Hundred and Sixty-ninth St.; architect, W. W. Gardiner.

East Seventeenth St., No. 604, rear, three-st'y brick office, tool-house and dwell., tin roof; cost, $2,500; owner, John Blaurock, on premises; architect, Fred. Jenth; builder, Joseph Hauser.

One Hundred and Twenty-eighth St., n s, 150′ e Lexington Ave., six-st'y brick factory, tin roof; cost, $30,000; owner, J. J. Nestell, exr., 152 Broadway; architects, A. B. Ogden & Son.

Forty-eighth St., s s, 300′ w Tenth Ave., five-st'y brick factory, tin roof; cost, $34,000; owner, Chas. Lesinsky, 13 East Eighty-third St.; architects, Berger & Baylies; builder, Gustav Staiger.

East Seventy-fifth St., No. 421, five-st'y brick tenement, tin roof; cost, $18,500; owner, Eva Mueller, 416 East Seventy-sixth St.; architect, John Brandt.

Broadway to Seventh Ave., 80′ s Fifty-third St., one st'y brick building (skating-rink), tin roof; cost, $16,000; lessee, Fred. R. Fortmeyer, 405 West Twenty-second St.

Second Ave., e s, Seventy-sixth to Seventy-seventh St., 8 five-st'y brown-stone front tenements and stores, tin roofs; cost, two, each, $22,000; six, each, $14,000; owners, Higgins & Keating, 300½ East Seventy-ninth St.; architects, A. B. Ogden & Son.

Seventy-sixth St., n s, 88′ e Second Ave., five-st'y brown-stone front tenement, tin roof; cost, $22,000; owners and architects, same as last.

Seventy-seventh St., s s, 88′ e Second Ave., five st'y brown-stone front tenement, tin roof; cost, $18,000; owners and architects, same as last.

Oak St., No. 47, four-st'y brick tenement, tin roof; cost, $12,000; owner, Sarah Welsh, 53 Oak St.; architect, Emile Gruwe.

Fifty-sixth St., n s, 150′ e Eleventh Ave., three-st'y brick storage building, tin roof; cost, $—; owners, A. H. Hart Co., John Hinde, president, 418 West Seventy-ninth St.; architect, A. Spence, builder, John Van Dolsen.

One Hundred and Eighteenth St., s s, 90′ e Fourth Ave., 2 five-st'y brick tenements, tin roofs; cost, each, $20,000; owner, Henry Chenoweth, Ninety-second St.. architect, John C. Burne.

Seventy-eighth St., s s, 250′ w First Ave., five-st'y brown-stone front flat; owner, James Carroll, 1489 First Ave.; architect, John F. Wilson; done by day's work.

Sheriff St., Nos. 63 *and* 65, 2 five-st'y brick tenements, tin roofs; cost, each, $18,000; owner and architect, Anthony A. Hughes, 2063 Fifth Ave.

Old Slip, bet. Front and Water Sts., two-st'y and attic brick and stone building (for Hook and Ladder Co.), slate roof; owner, City New York Fire Dept. 155 Mercer St.; architects, N. Le Brun & Son.

ALTERATIONS.—*Duane St., No.* 176, repair damage by fire; cost, $5,000; owner, Lorillard Estate, J. M. Jackson, agent, 3 Mercer St.; builders, John Porter and R. M. Berry.

Broadway, Nos. 616 *and* 618, repair damage by fire; cost, $3,400; owner, Mutual Real Estate Co., Julius Levy, treasurer, 472 Broadway; builder, Henry Wallace.

Fifth Ave., No. 499, one-st'y brick extension, rebuild front wall, tin roof; also internal alterations; cost, $15,000; owner, Alex. A. Hume, 148 East Ninety-second St.; architect, Wm. H. Hume; builder, not decided.

West Seventy-third St., No. 473, internal alterations; cost, $6,500; owner, Dr. Charles F. Hoffman, 652 West Fifty-third St.; architect, John B. Snook.

St. Louis.

BUILDING PERMITS.— Forty-seven permits have been issued since our last report, thirteen of which are for unimportant frame houses. Of the rest, those worth $2,500 and over are as follows: —

St. Louis Cable R. R. Co., two-st'y brick stable; cost, $20,000; sub-let.

Henry Shaw, two-st'y store; cost, $3,000; Barnett & Son, architects; sub-let.

G. G. Williams, double three-st'y dwell.; cost, $8,200; Barnett & Son, architects; F. O. Brechner, contractor.

St. Agatha Church, one-st'y brick church; cost, $27,000; A. Druding, architect; Joe Stander, contractor.

Fred. Reitz, two-st'y store and rooms; cost, $2,900; J. C. Brockmeyer, contractor.

Mrs. M. Reed, two-st'y dwell.; cost, $2,500; W. A. Reid, contractor.

Thos. Sparks, two-st'y dwell.; cost, $3,800; Goesse & Remmers, contractors.

H. F. Schrader, 3 adjacent two-st'y tenements; cost, $4,500; H. F. Schrader, contractor.

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Ferdinand Meyer, double two st'y brick dwell.; cost, $6,500; T. Mueller, contractor.

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Henry Boormann, two-st'y brick dwell.; cost, $3,000; L. Stecker, contractor.

Jno. E. Shorb, three-st'y store and dwell.; cost, $4,000; A. E. Cook, contractor.

Henry Pettker, two-st'y tenement-house; cost, $4,800; A. Beinke & Co., architects; H. Schilte, contractor.

Robt. B. Brown Oil Co., two-st'y brick stable; cost, $2,500; W. Merrill, contractor.

Phil Rieckers, two-st'y tenement; cost, $2,500; C. F. May, architect; P. Richers, contractor.

H. Hasen Kamp, two-st'y tenement; cost, $2,800; C. F. May, architect; P. Rickers, contractor.

Schultz, one-st'y dwell.; cost, $2,800; C. F. May, architect; P. Richers, contractor.

Dr. C. Ludwig two-st'y business house; cost, $5,000; N. H. Melcher, architect; sub-let.

Toledo.

BUILDING PERMITS.— *Twenty-third St.*. cor. Madison St., brick dwell., for Mr. H. S. Walbridge. The contractor for enclosing only, E. Fruend; cost of this portion about $4,500; N. B. Bacon, architect.

Raymond St., frame dwell., for R. J. Wheeler; cost, $4,000; Brown & Symington, contractors; N. B. Bacon, architect.

Woodruff Ave., frame dwell., for Mrs. L. C. Reed; cost about $2,600; Richard Hattersley, contractor; N. B. Bacon, architect.

Woodruff St., cor. Parkwood Ave., frame dwell. for Mr. Jas. L. Rodgers; cost, about $7,500; J. Alexander, architect; Jno. W. Lee, builder.

Ontario St., cor. Jefferson St., engine-house. City of Toledo; cost, about $11,000; Carl Schumhl, builder; N. B. Bacon, architect.

Prescott St., cor. Parkwood Ave., frame dwell., F. H. Hoag; cost, about $6,500; J. H. Tappan, builder; N. B. Bacon, architect.

Parkwood Ave., brick dwell., E. W. Baumgardner; cost, about $7,000; Jas. B. Hassett, builder; N. B. Bacon, architect.

Superior St., cor. Oak St., three-st'y brick manufacturing building, 100′ x 110′, for D. R. Locke ("Nasby"); cost, about $20,000; Geo. E. Whipple & Co., builders; N. B. Bacon, architect.

General Notes.

CATONSVILLE, MD.— W. T. Wilson, Esq., is to have erected a two-st'y and attic stone and frame dwell., 48′ x 64′, to cost $9,000, from designs by J. A. & W. T. Wilson, architects, Baltimore.

KANSAS CITY, MO.—A. R. Hardesty, repairing building on Lot 87, Swope's addition; cost, $2,500.

E. S. Young, wooden residence on Lot 3, Block J, Ransom & Talley's addition; cost, $3,000.

W. G. Thomas, brick residence, at Lot 22, Block 3, Merriam Pl.; cost, $2,500.

MINNEAPOLIS, MINN.—J. W. Clark, one-st'y addition to roller-rink, cor. Tenth Ave. and North First St.; cost, $20,000.

L. L. Chadwick, two-st'y frame dwell. and barn, n e cor. Third Ave. and Thirty-second St.; cost, $2,000.

John Carlson, two-st'y frame dwell., e s Fifth St., between South Twenty-fifth and South Twenty-sixth Aves.; cost, $2,000.

John Stene, double two-st'y brick stores and flats, cor. Cedar and Riverside Aves.; cost, $4,000.

C. F. Stafford, 8 two-and-one-half-st'y dwells., n w cor. Vine Pl. and South Fourteenth St.; cost, $16,000.

ST. PAUL, MINN.— Lauer Bros., one-st'y mill-building, Chestnut St., between Levee and Washington Sts., cost, $6,000.

Charles W. Hartman, two-st'y frame dwell., between Plum and Maple Sts.; cost, $2,450.

John M. Carlson, two-st'y brick-veneer double tenement, s s of Irvine Park drive, Lot 7, Block 35; cost, $5,000.

H. C. Peterson, roller-skating rink, n e cor. Oak Lake St. and North Sixth Ave.; cost, $9,000.

W. H. Carey, two-st'y frame double dwell., e s of Arundel St., between Dayton and Marshall Sts.; cost, $3,600.

STONY POINT, N. Y.— The Knapp Homestead is to be enlarged, and important alterations made from designs of Messrs. C. W. Romeyn & Co., of New York, for the owner, Mr. W. K. Hammond.

COMPETITION.

AMERICAN ARCHITECT COMPETITIONS.—NEW SERIES.

As the busy season for this year has nearly passed, the younger men who have in past years evinced an active interest in the little competitions we have held from time to time, may be ready to test once more their skill in design in competition with their fellows. Therefore we take pleasure in inviting their attention to the following

PROGRAMME.

Most people who live in the country, or in the suburbs of a large town, and have sufficient means, usually feel obliged to "set up their carriage," and of course a carriage implies horses, and a building in which the entire establishment can be housed. Therefore we propose as the subject of the present competition a barn such as the dweller in a house that has cost $5,000 would consider an appropriate adjunct of his establishment; but as this may be somewhat ambiguous, seeing that some men think more of their horses than they do of their families, we will say that the proprieties would be best observed if the cost of the barn should range between $1,000 and $1,500.

The barn must furnish accommodation for two horses and a cow; the carriage-room must be large enough for two wheeled vehicles and a sleigh; and proper provision must be made for harness, feed and hay, and the stableman must not be overlooked. Water and ventilation must also be kept in mind.

Required:—A perspective drawing of the barn, elevations of the sides not shown in the perspective, a plan or plans, and a reasonable amount of detail; all to be included on a single sheet, 21″ x 33″ within the framing lines. A short description and the result of a *bona fide* estimate must also be furnished. For the best three designs we will pay equal prizes of thirty dollars each.

Conditions: — Drawings must be received at the office of the *American Architect*, on or before Saturday, December 20, 1884.

The three prize drawings are to remain the property of the publishers.

All designs submitted are subject to publication in the *American Architect* at the pleasure of the editors.

All designs must be sent in signed only by a motto —*not a graphic symbol*—the name and address of the author being sent enclosed in a sealed envelope, endorsed with a duplicate motto.

The jury of award will be composed of three architects.

PROPOSALS.

STEAM-HEATING APPARATUS.
[At Memphis, Tenn.]
OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., November 17, 1884.

Sealed proposals will be received at this office **until 2 P. M., on the 8th day of December, 1884,** for supplying and putting in place complete in the Marine Hospital building at Memphis, Tenn., a low pressure return circulation steam heating apparatus, in accordance with drawings and specification, copies of which and any additional information may be had on application at this office, or the office of the superintendent.

Bids must be accompanied by a certified check, and those received after the time of opening will not be considered. M. E. BELL,
466 Supervising Architect.

POROUS TERRA-COTTA TILE FOR ROOFS.
[At Buffalo, N. Y., and Toledo, O.]
OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., November 7, 1884.

Sealed proposals will be received at this office, **until 2 P. M., on the 22d day of November, 1884,** for furnishing the porous terra-cotta tiles for the roof of the custom-house, etc., buildings at Buffalo, N. Y., and Toledo, O., estimated as follows: —

4,500 superficial feet at Buffalo, N. Y. 13,000 superficial feet at Toledo, O., in accordance with drawing and specification, copies of which and any additional information may be had on application at this office, or the office of the superintendent at each building.

Bids must be accompanied by a certified check, and those received after the time of opening will not be considered. H. G. JACOBS,
465 Acting Supervising Architect.

IRONWORK.
[Near Charleston, W. Va.]
U. S. ENGINEER OFFICE, 378 ST. PAUL ST.,
BALTIMORE, MD., October 30, 1884.

Proposals for ironwork in the foundations of a movable dam, at Lock No. 6, on the Great Kanawha River, W. Va., about four miles below Charleston, will be received at the U. S. Engineer Office, Charleston, Kanawha County, W. Va., **until noon of December 2, 1884,** and opened immediately thereafter.

Blank forms, specifications, and any desired information can be had upon application to Mr. A. M. Scott, Assistant Engineer at that office.

WM. P. CRAIGHILL,
465 Lt.-Col. of Eng'rs, U.S. Army.

TIMBER, BOLTS AND STONE.
[Near Pt. Pleasant, W. Va.]
UNITED STATES ENGINEER OFFICE,
CINCINNATI, O., October 23, 1884.

Setled proposals in duplicate, will be received at this office **until noon** (local time) **on Monday, the 8th day of December, 1884,** for furnishing material and building two ice piers in the Great Kanawha River near Point Pleasant, West Va.

Approximate quantities of material required: —

204,472 feet B. M., oak timber.

9,536 lbs. iron drift bolts.

2,486 cubic yards rip-rap stone.

Specifications and blank forms for proposals will be furnished on application to this office. Letters asking specifications should be marked "Official Business" on the envelope. WM. E. MERRILL,
466 Lt.-Col. of Engineers.

TIMBER.
[At Chicago, Ill.]
UNITED STATES ENGINEER OFFICE,
25 HONORE BUILDING,
CHICAGO, ILL., November 8, 1884.

Sealed proposals in triplicate, will be received at this office, **until 12 o'clock, noon, Tuesday, December 9, 1884,** for furnishing pine and hemlock timber for breakwater construction at Chicago, Ill. The total amount required will be about two millions one hundred and sixty-seven thousand (2,167,000) feet B. M., to be delivered between the opening of spring navigation and September 1, 1885.

Parties who are not prepared to furnish the entire lot may submit propositions for a portion only, but not for less than two cribs.

For specifications, blanks for proposals, and all information, apply at this office.

WM. H. H. BENYAURD,
466 Major of Engineers, U. S. A.

MARBLE TILING.
[At Kansas City, Mo.]
OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., November 1, 1884.

Sealed proposals will be received at this office **until 2 o'clock, P. M., on the 22d of November, 1884,** for furnishing and laying all the marble tiling required in the custom-house and post-office building at Kansas City, Mo., in accordance with the drawings and specification, copies of which and any additional information may be obtained on application at this office, or the office of the superintendent.

Bids must be accompanied by a certified check, and those received after the time of opening will not be considered. M. E. BELL,
464 Supervising Architect.

COURT-HOUSE FRONT.
[At Woodstock, Va.]

Sealed proposals will be received at the office of the Clerk of the County Court of Shenandoah County, **until Monday, November 24, 1884, 10 o'clock,** A.M., for furnishing the materials and performing the necessary labor for the erection of a court-house front at Woodstock, Va.

The building to be of brick, with stone facing, 40′ x 75′, two-st'y, with mansard roof and tower, with the clerk's offices (Circuit and County) on the lower floor fire-proof.

Plans and specifications may be seen at the County Clerk's Office, or at the office of T. F. Schneider, Architect, 933 F St., n w Washington, D. C.

Each bid must state the time required for the completion of the building, and a proper bond will also be required of the person who is awarded the contract.

The Board of Supervisors reserve the right to reject any and all bids.

By order of the Board. L. S. WALKER,
465 Clerk Board Supervisors Shen. Co. Va.

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PROPOSALS.

STONE AND BRICK WORK.
[At Rochester, N. Y.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., November 12, 1884.

Sealed proposals will be received at this office **until 2 P. M., on the 13th day of December, 1884**, for furnishing and setting all the stone-masonry, and supplying and laying all the brick masonry required for the basement and superstructure of the court-house, post-office, etc., building at Rochester, N. Y., in accordance with the drawings and specification for each class of work, copies of which may be seen and any additional information obtained on application at this office, or the office of the Superintendent, on and after November 20.

Bids must be accompanied by a certified check, and those received after the time of opening will not be considered.

M. E. BELL,
466 Supervising Architect.

CITY-HALL.
[At Richmond, Va.]

CITY ENGINEER'S OFFICE,
RICHMOND, VA., October 15, 1884.

Sealed proposals are invited **until December 1st, at 12 o'clock, M.**, for building a new city-hall at Richmond, Va.

Drawings, specifications, and printed forms can be seen at this office.

The Committee on Grounds and Buildings reserves the right to reject any and all bids.

For further information apply to the undersigned.

466 W. E. CUTSHAW, City Engineer.

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PROPOSALS.

BALCONIES.
[At Washington, D. C.]

OFFICE SUPERVISING ENGINEER AND ARCHITECT, NEW PENSION BUILDING,
WASHINGTON, D. C., November 11, 1884.

Proposals are invited for the decorative wrought-iron work of one or two bracket balconies, 70′ x 5′ in the new Pension Building.

Drawings and specifications are to obtained from this office. Proposals opened **at noon of 3d December.**

M. C. MEIGS,
467 Supervising Engineer and Architect.

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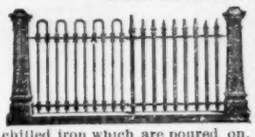

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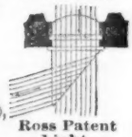

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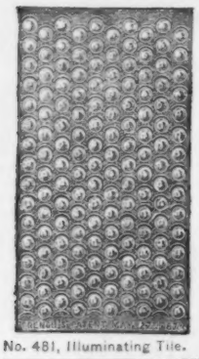

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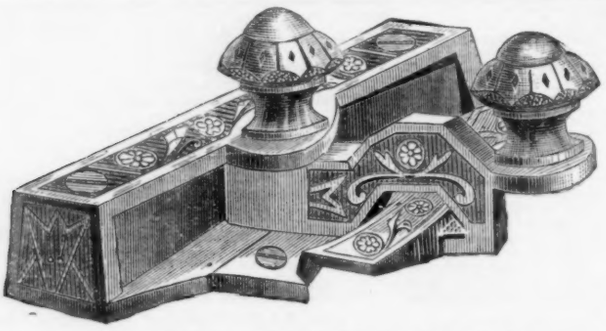

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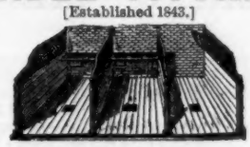

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ARCHITECTS' MATERIALS. PAGE
Keuffel & Esser, New York xx
Wadsworth, Howland & Co., Boston iv

ANNUNCIATORS.
Edwards & Co., New York iv
W. R. Ostrander & Co., New York ix
Western Electric Co., New York & Chicago ix

ASBESTOS COVERINGS.
H. W. Johns M'f'g Co., New York xi

ASPHALT.
Henry R. Bradbury, New York x
New York Mastic Works i

BASIN WASTE.
H. M. Weaver, Mansfield, O xvii

BELL FOUNDERS.
H. McShane & Co., Baltimore xvi
Vanduzen & Tift, Cincinnati, O xvi

BOOKS AND JOURNALS.
Wm. T. Comstock, New York x
J. R. Osgood & Co. Boston iii

BRICK (ORNAMENTAL).
Anderson Pressed Brick Co., Chicago xviii
Hydraulic Press Brick Co., St. Louis xviii
Peerless Brick Co., Philadelphia xvii
Waldo Bros., Boston xviii

BUILDING PAPER.
N. Y. Coal Tar Chemical Co., New York x

CARPETINGS.
W. & J. Sloane, New York i

CEMENT.
James Brand, New York xviii
Brooks, Shoobridge & Co., New York iv
Howard Fleming, New York x
Gabriel & Schall, New York xviii
Johnson & Wilson, New York xx
Sinclair & Babson, New York, N. Y. xviii
Standard Cement Co., Hartford, Conn xviii

CHAIR-SEATING.
Baker, Pratt & Co., New York and Phila ix
Harwood Chair Seat Co., Boston ix

CLOCKS FOR PUBLIC BUILDINGS.
E. Howard Watch & Clock Co., Boston xvi
Seth Thomas, Thomaston, Conn xvi

CONDUCTORS (WATER).
Austin, Obdyke & Co., Philadelphia ii
Boston Spiral Tube Works, Boston ii
Bolderiess Standing-Seam Conductor Co., Allegheny, Pa ii

CONTRACTING. Flynt Building & Construction Co., Palmer, Mass i

COPPERSMITHS AND METAL-WORKERS.
G. L. Swett & Co., Boston iv

COPYING-PRESS.
Geo. A. Ohl, Newark, N. J. v

CORNICES (GALVANIZED IRON).
Mesker & Bro., St. Louis, Mo xv

COVERING (BOILER).
Shields & Brown, Chicago vi

CYPRESS-LUMBER.
A. T. Stearns Lumber Co., Boston xvi

DECORATIVE LEATHER.
Walker & Thompson, New York iii
C. R. Vandell & Co., New York iii

DECORATORS.
Cox Sons, Buckley & Co., New York ii
Otto Gaertner, New York iii
Haskins, Chicago iii
L. Haberstroh & Son, Boston iii
J. Holmes, Boston ii
La Farge Decorative Art Co., New York iii
Donald McDonald, Boston ii
W. J. McPherson, Boston iii
Frank Hill Smith, Boston iii

ELEVATORS, ETC.
Clem & Morse, Philadelphia iv
Crane, New York & Chicago i
L. S. Graves & Son, Rochester, N. Y. i
Geo. C. Howard, Phila. v
E. E. McCalvey, Philadelphia v
Otis Brothers & Co., New York i
Stokes & Parrish, Philadelphia i
Sulzer & Vogt, Louisville, Ky v
Whittier Machine Co., Boston i
Z. Wile, Boston v

ENGINES (CALORIC PUMPING).
Delamater Iron Works, New York x

ENGINES (GAS).
Schleicher, Schumm & Co., Philadelphia x

EXHIBITION (BUILDING).
H. L. Gay, Chicago xi

FENCING (IRON).
David Pettit & Co Phila xv

FIRE-PROOF BUILDING.
Fire-Proof Building Co., New York xix
Frank Lyons, Jr., New York xix
Magneso Calcite Fire-Proof Co., Boston xix
Henry Maurer, New York xix
Ottawa Tile Co., Chicago xix
Raritan Hollow and Porous Brick Co xix
John J. Schillenger, New York xix
Wright Fire-Proofing Co., New York xix

FLOORS (INLAID).
J. W. Boughton, Phila ix
National Wood M'f'g. Co., New York xx
Wm. Hannam & Co., New York xx
W. C. Runyon & Co., Rochester, N. Y ix
W. E. Wheeler, Toledo, O iv

FURNITURE.
Degraaf & Taylor, New York ix
Keeler & Co., Boston ix
Tomlinson & Carsley, Chicago ix

GAS-FIXTURES.
Archer & Pancoast M'f'g Co., New York x
Mitchell, Vance & Co., New York i
Oxley, Giddings & Enos, New York i

GAS-MACHINES.
Combination Gas-Machine Co., Detroit viii
Denny Bros. & Co., New York xiii
Pa. Globe Gas-Light Co., Phila ix
Tirrill Gas-Machine Co., New York xiii

GAS-STOVES.
Goodwin Gas-Stove Co., Phila vii

GLASS.
Crystal Plate-Glass Co., St. Louis, Mo xii

GLASS ROOFING.
Arthur E. Rendle, New York i

GLASS (STAINED AND ORNAMENTAL).
James Baker & Son, New York ii
Geo. R. Clarke & Co., Boston ii
Wm. Coulter & Son, Cincinnati ii
George Drake, Cleveland, O iii
Otto F. Falck & Co., New York ii
Friedericha & Staffin, Detroit, Mich iii
Alfred Godwin & Co., Phila iii
R. S. Groves & Steit, Philadelphia ii
H. Edgar Hartwell, New York iii
Kelley & Co., Boston iii
S. S. Marshall & Bros., Allegheny, Pa iii
John Matthews, New York iv
McCully & Miles, Chicago ii
W. J. McPherson, Boston ii
Donald MacDonald, Boston iii
Redding, Baird & Co., Boston ii
Samuel West, Boston ii
W. C. Young, Phila., Pa ii

GRATES, ETC.
J. S. Conover & Co., New York xx
Henry Dibblee, Chicago iii
Eureka Grate Works, Cincinnati, O iv
W. H. Harrison & Bro., Philadelphia viii
W. H. Jackson & Son, New York vi
Edwin A. Jackson & Bro., New York x
Wm. H. Jackson, New York xx
Open Stove Ventilating Co., New York vii

HARDWARE.
Burditt & Williams, Boston v
Manhattan Hardware Co., Reading, Pa xii

HEATING APPARATUS.
Bartlett, Hayward & Co., Baltimore i
Boynton Furnace Co., New York xiii
Abram Cox Stove Co., Philadelphia, Pa viii
Geo. F. Gelbach, Phila vii
Richardson & Boynton Co., New York xiii

HEATING APPARATUS (STEAM).
Peter Backus, New York viii
T. H. Brooks, Cleveland iv
John Davis & Co., Chicago, Ill vii
Detroit Steam Radiator Co., Detroit, Mich vii
A. A. Griffing Iron Co., Jersey City xx
Holland & Thompson, Troy, N. Y vi
Newell Universal Mill Co., New York vii
Page Steam-Heating Co., Norwich, Conn iv
Rutzler & Blake, New York City iii
H. B. Smith Co., New York vii
James P. Wood & Co., Philadelphia i

HEATING AND VENTILATING.
Smith & Anthony Stove Co., Boston, Mass viii

HELIOTYPE PROCESS.
Heliotype Printing Company, Boston x

HINGES. M. W. Robinson, New York xv

HINGES (SPRING).
Van Wagoner & Williams Co., New York xx

INSURANCE.
American Fire Ins. Co x
Hanover Fire Ins. Co v
Insurance Co. of North America, Phila x
United States Mutual Ins. Co., New York v

IRON ROOFING.
Cincinnati Corrugating Co., Cincinnati xiv

IRON-WORK (ARCHITECTURAL).
Bartlett, Hayward & Co., Baltimore i
Boston Bridge Works iv
Carnegie Bros. & Co., Pittsburgh, Pa xv
Cheney & Hewlett, New York xv
M. Clements, Cincinnati, O iv
Composite Iron-Works Co., New York xi
Cooper, Hewitt & Co., New York xvi
Samuel J. Creswell, Philadelphia xv
J. B. & J. M. Cornell, New York xv
J. G. & T. Dimond, New York xv
Manly & Cooper M'f'g Co., Phila xv
McHose & Lyon, Dayton, O xv
Mesker & Bro., St. Louis, Mo xv
A. Northrop & Co., Pittsburgh, Pa xv
Passaic Rolling Mill Co., Paterson, N. J xv
Phœnix Iron Co., Philadelphia xv
Snead & Co., Louisville, Ky xv
J. S. Thorn, Phila., Pa xv
Union Foundry and Pullman Car Wheel Works, Chicago, Ill xv
Wallis Iron Works, Jersey City, N. J xv

KILNS.
W. D. Thompson, New York ii

LOCKS.
Yale & Towne M'f'g Co., Stamford, Conn xx

MACHINERY.
Goodell & Waters, Philadelphia xvi

MACHINERY (LAUNDRY).
Troy Laundry Machinery Co., Troy xvi

MANTELS.
Henry Dibblee, Chicago iii
Joseph S. Miller & Bro., Philadelphia viii

MANTELS (SLATE).
Fischer-Leaf Co., Louisville, Ky vi

MARBLE.
C. Carranza & Co., New York xviii

MARBLE MOSAICS.
J. Pasquali & C. Aeschlimann, New York iii
Stillman & Nicoll, Boston, Mass ix

MARBLE-WORKERS.
A. L. Fauchere & Co., New York ii
Robert C. Fisher, New York i

METAL-WORK (ART).
Tahanto M'f'g Co., Boston iv

METAL-WORKERS.
J. & R. Lamb, New York ii

MINERAL WOOL.
U. S. Mineral Wool Co., New York iv

MORTAR BLACK.
Henry D. Dupee, Boston xviii

MORTAR COLORS.
American Soapstone Finish Co., Providence, R. I. iv
Samuel H. French & Co., Philadelphia iv

OILS.
Robert Colgate & Co., New York v

PHOTOGRAPHS.
Soule Photograph Co., Boston xi
J. W. Taylor, Chicago, Ill i

PIPE-COVERING.
The Chalmers-Spence Co., New York vi

PUMPS (STEAM).
Geo. F. Blake M'f'g Co, Boston and New York xvi
H. R. Worthington, New York and Boston v

RADIATOR (STEAM).
Detroit Steam-Radiator Co., Detroit, Mich vii

REFLECTORS.
I. P. Frink, New York xvii

REGISTERS.
Tuttle & Bailey Man'f'g Co., New York and Boston viii

ROOFING MATERIALS.
Eureka Slate Co., Poultney, Vt xiv
Granite Roofing Co., Phila xiv
Merchant & Co., Phila xiv
N. E. Felt Roofing Co., Boston xiv
H. F. Watson, Erie, Pa xiv

ROOFERS.
John Farquhar's Sons x
Knisely & Miller, Chicago, Ill xiv

RUBBER GOODS.
N. Y. Belting & Packing Co., New York vii

RUGS. H. A. Hartley & Co., Boston vi

SANITARY SUPPLIES.
Myers Sanitary Depot, New York xx

SASH-CHAINS.
Thomas Morton, New York vi
Smith & Egge M'f'g Co., Bridgeport, Conn xx

SCENERY (THEATRICAL).
Lafayette W. Seavey, New York xx

SCHOOLS (ARCHITECTURAL).
Cornell University, Ithaca, N. Y xiii
Institute of Technology, Boston xiii

SCREENS.
American Screen Co., Brookline, Mass ix

SEWER-GAS TRAP.
B. P. Bower & Co., Cleveland xvii

SEWER PIPE.
Akron Sewer Pipe Co. Akron, O xviii

SHINGLE STAINS.
S. Cabot, Jr., Boston v

SHUTTERS.
Clark, Bunnett & Co., New York xx

SHUTTER-WORKER.
C. S. Kempton, New York ix

SKYLIGHTS, ETC.
Bickelhoupt Bros., New York viii
G. Hayes, New York viii
S. J. Pardessus, New York viii
John Seton, Brooklyn viii
G. L. Swett & Co., Boston iv
E. Van Noorden, Boston viii

SLATE.
T. F. & J. A. Hayden, St. Louis, Mo xviii
Story & Wilbur, Boston xiv

SOAPSTONE FINISH.
American Soapstone Finish Co., Providence, R. I. iv

STABLE FITTINGS.
Samuel S. Bent & Son, New York xiii

STATUARY (BRONZE).
National Fine Art Foundry, New York xvi

STONE (BUILDING).
Hallowell Granite Co., Bedford, Ind xviii
M. H. St. John, New York xviii
Malone & Co., Cincinnati, O xviii
Ohio Building Stone Co., Cleveland i
G. P. Sherwood, New York xviii
Thomlinson & Reed, Chicago xviii

STOP-COCK.
Thos. Kelly & Bros., Chicago, Ill xvii

TERRA-COTTA.
Baltimore Terra-Cotta Co., Baltimore, Md xix
Boston Terra-Cotta Co xix
A. T. Chur, New York xix
A. Hall Terra-Cotta Co., Perth Amboy xix
Northwestern Terra-Cotta Wks., Chicago xix
Indianapolis Terra-Cotta Co., Ind'polis xix
H. A. Lewis, Boston xix
Perth Amboy Terra-Cotta Co xix
Young O. Wilson & Son, Baltimore, Md xix

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American Encaustic Tiling Co., New York i
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Fernando Miranda, New York i
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U. S. Encaustic Tile Co., Indianapolis i

TRANSOM LIFTER.
F. A. Reiher & Co., Chicago ix
J. F. Wollensak, Chicago ix

TRAPS.
Jas. Barrett, Boston xvii

VALVES AND PACKING.
Jenkins Brothers, New York x
Washburn & Moore, Yonkers, N. Y xvi

VAULT LIGHTS.
Dauchy & Co., Chicago xi

VENTILATORS.
Globe Ventilator Co., Troy, N. Y viii

WALL PAPER.
C. H. George, New York iii

WATER-CLOSETS.
J. L. Mott Iron Works, New York xvii

WATER COLORS.
J. Marsching & Co., New York v

WATER-PROOFING.
Theodore Hunt, St. Louis, Mo xix

WIRE LATHING, ETC.
Clinton Wire Cloth Co., Clinton, Mass v

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National Wire & Iron Co., Detroit, Mich xvi

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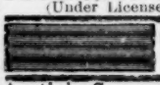
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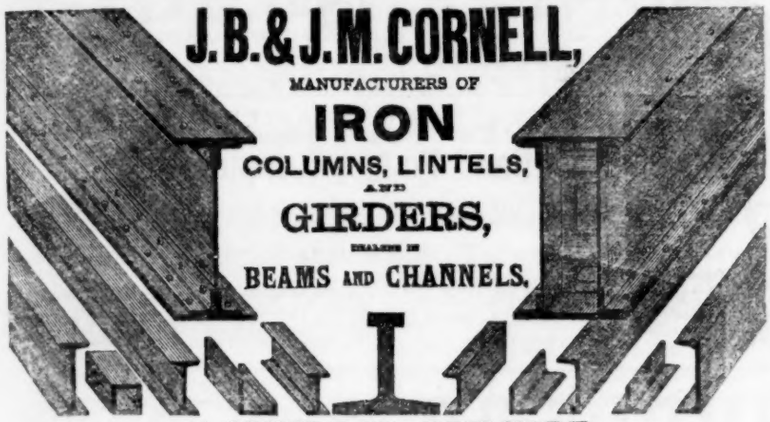

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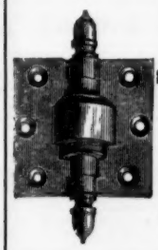

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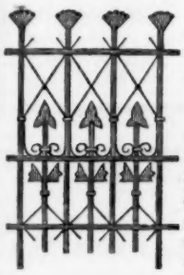

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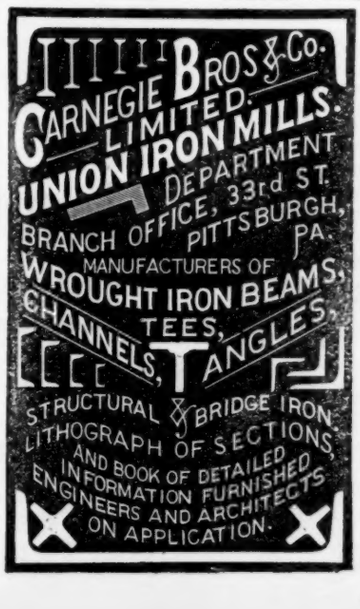

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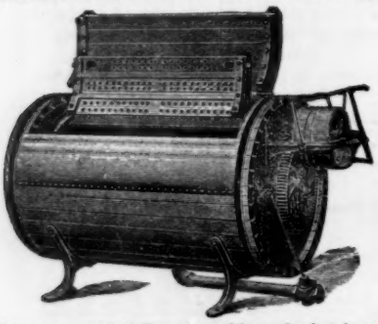

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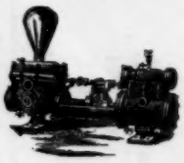

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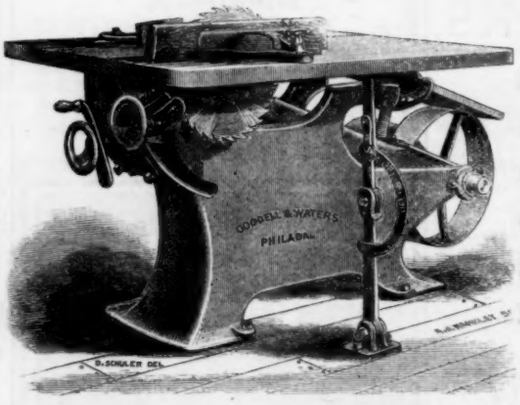

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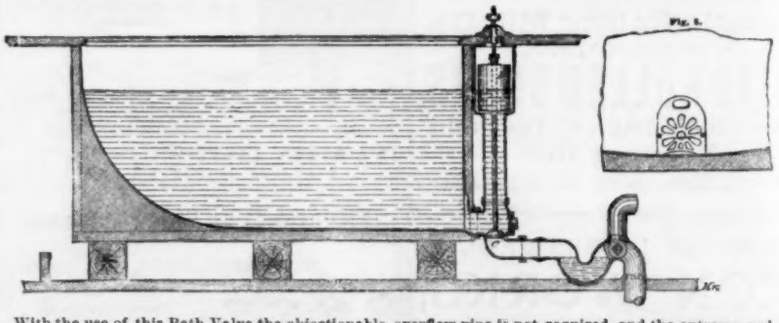

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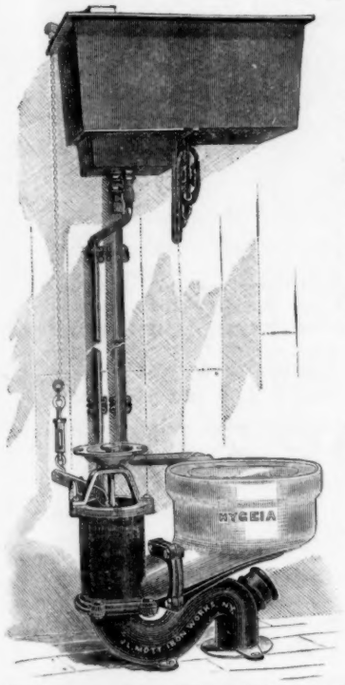

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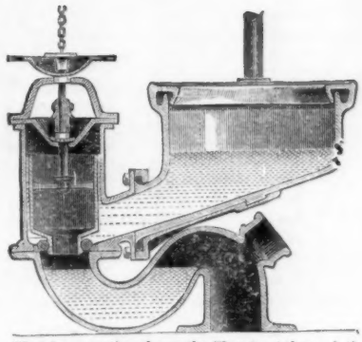

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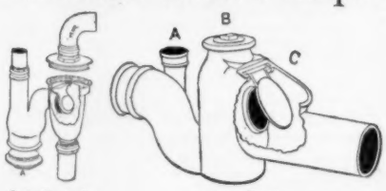

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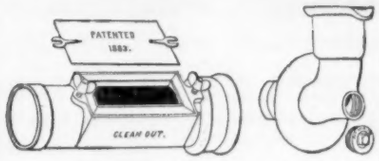

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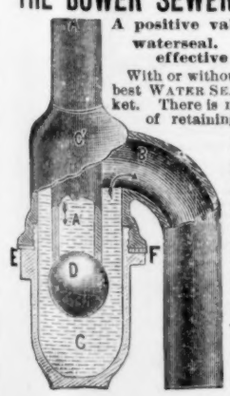

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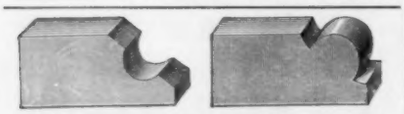

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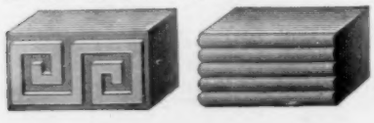

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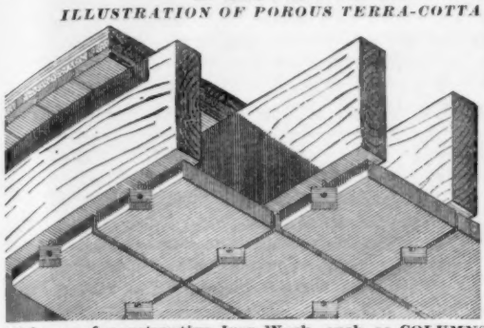

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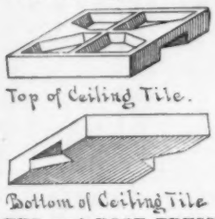

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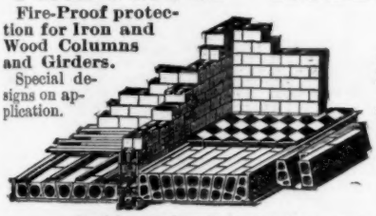

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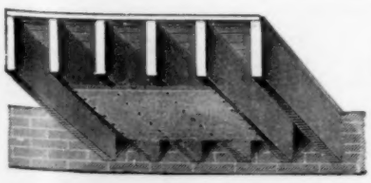

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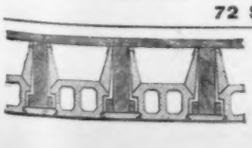

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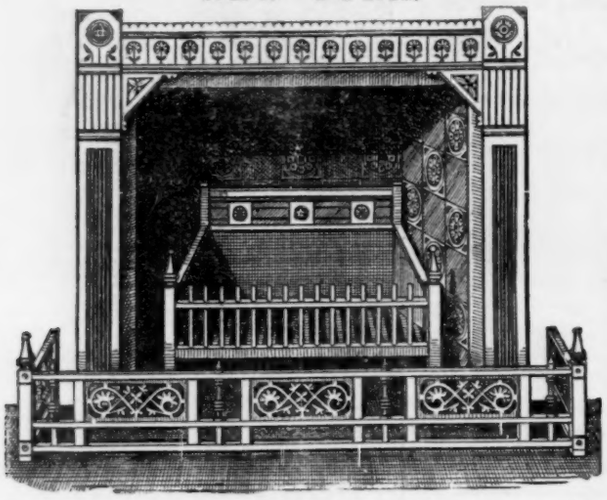

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